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Monitoring and Evaluating Family Planning Programmes in the 1990s

KOREA INSTITUTE FOR HEALTH AND SOCIAL AFFAIRS
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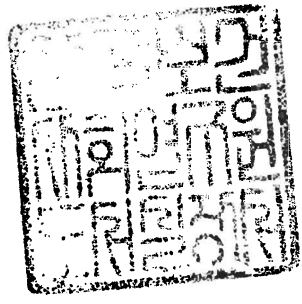

Foreword

The Seminar on Family Planning/MCH Programme Management Information Systems in the 1990s organized jointly in June 1990 by the Korea Institute for Health and Social Affairs (KIHASA) and Economic and Social Commission for Asia and The Pacific (ESCAP) was very successful.

Due to the various constraints including data processing and analysis of programme information, and timely feedback for the improvement of the service quality, existing information systems of family planning/MCH programmes in the ESCAP member countries cannot be sufficiently performed their desired functions. In view of these, there is a crucial need for a well-designed management information system which can improve the efficiency and effectiveness of programme performance monitoring and evaluation. This seminar was one of the effort to cope with the current need of issue.

The seminar was attended by senior programme managers/policy makers and the head of the monitoring and evaluation units of national population and family planning programmes. In order to enhance and broaden the perspective of the discussion at the seminar, renowned researchers from the region and international institutions were invited to present theme-specific technical papers to raise awareness of the critical issues in the areas of programme planning and management. The seminar enabled the sharing of experience and the updating of knowledge on issues in population programme management. The deliberations at the seminar helped in narrowing the gap between programme managers and policy makers concerning their received data needs to monitor and evaluate the programmes and the capacity of the systems to meet those needs.

This report of the seminar has been published for circulation to the related organizations and personnels in the country by KIHASA and same type of publication by the name of ESCAP has been provided for the use of ESCAP purpose separately.

I would like to take this opportunity to express my sincere thanks to the ESCAP secretariat as well as KIHASA staff in charge, participants, and resource persons for their effort to make the seminar so successful.

Dal Hyun Chi
President

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Chapter 1

ORGANIZATION OF THE SEMINAR

A Seminar on Family Planning/Maternal and Child Health Programme Management Information Systems in the 1990s was held at Seoul, Republic of Korea from 20-26 June 1990. It was organized by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) with financial assistance from United Nations Population Fund (UNFPA) and the Korea Institute for Health and Social Affairs (KIHASA).

A. BACKGROUND AND OBJECTIVES OF THE SEMINAR

Family planning/maternal health and child health programmes have been implemented in most countries of the ESCAP region during the last 25 years and have achieved considerable success in initiating and sustaining fertility decline. However, more effort and more resources are still needed to maintain the momentum and improve the programmes.

Emerging population issues are more complex now than those encountered over the last 25 years. Programmes no longer can be sustained as independent and externally financed entities. In some countries, family planning programmes have achieved their demographic goals; thus, their aims need to be redefined to include social welfare goals instead of narrow demographic targets. Of course, social welfare has always been a major justification for programmes but this aspect has been somewhat overshadowed by fertility control priorities.

In countries where programmes are still striving to succeed, the challenge is to plan for an efficient service-delivery system that recognizes the need for wider participation in planning, design and implementation. In these settings, it is necessary to upgrade both the quality and quantity of services. This upgrading has to be achieved in the context of a shift in donors' funding from broad-based programme coverage to more specific activity-oriented support. This has encouraged countries to readjust their programmes towards better utilization of available resources and mobilization of local resources.

Obviously these issues need to be tackled at different levels. But one of the essential prerequisites for success is to have an effective management information system (MIS) for programme monitoring and impact evaluation: one that will ensure a timely two-way flow of necessary information.

From their inception, FP/MCH programmes have developed service statistics systems to collect programme data. Initially, emphasis was on the collection of basic work performance indicators, such as number of acceptors, revisits, type of services and contraceptives supplied. As programmes matured, managers started to ask for more detailed and extensive statistics such as method- and age-specific patterns of use, number of continuous users and so on. These demands led to an ad hoc proliferation of records that workers had to maintain, and resulted in considerable duplication and redundancy in record keeping. As a consequence, workers in some programmes are maintaining as many as 28 registers/records. This situation is further complicated in countries where family planning programmes are integrated with health and rely on multipurpose workers. For example, workers in India are spending up to 30 per cent of their time in maintaining these records for reporting to various programmes heads.

The main reason for this proliferation of records and reports has already been mentioned. In the early stage of programme development, the information needs were confined to monitoring the day-to-day performance and achievement of targets. With the passage of time, this scope expanded to include determination of optimal resource allocation, supervision and control of programme operations, planning for future services, estimating the efficiency of services, determining programme effectiveness in terms of coverage and accessibility, and assessing the fertility impact of the programme. Moreover, increasing emphasis was placed on information regarding quality and welfare aspects. No single system, no matter how sophisticated, can meet all these needs. What has happened, therefore, is that extensive service statistics systems have developed that are too complex and take too much time for service providers to maintain properly. Moreover, much information is never used for programme monitoring and improvement.

The Population Division played an active role during the initial years of programme implementation by assisting countries to define monitoring needs, and to develop standardized forms and concepts and training manuals. However, in the late 1970s and early 1980s, ESCAP made only a modest contribution. Only in the mid-1980s, in the course of a study on programme impact and efficiency, did ESCAP take a major interest in the subject. Even though programmes collect very detailed information, the impact and efficiency study revealed that the data were of limited utility. Basic information, such as number of current users, is available only in very few countries. In addition, the quality of the available information was dubious. This realization led ESCAP to develop and test more simple and viable recording and reporting systems.

A similar perspective also led the United Nations Population Fund (UNFPA) to undertake a global needs assessment of family planning MISs. ESCAP participated in the seven of these diagnostic exercises. The findings from

these exercises indicate that the only practical use of most service statistics systems is to monitor the performance of workers. These elaborate over-loaded systems are seldom used for programme management purposes; the quality of data is often questionable; workers spend considerable time in maintaining the records; and most workers responsible for maintaining the records have neither been trained for that purpose, nor do they know why they are collecting then.

In addition, countries use different definitions and concepts to describe the same things. For example, in some countries, new acceptors are defined as married women accepting/using programme contraceptives for the first time, while in others, married women are classified as new acceptors each time they re-start contraception after a period of non-use. Similar problems are encountered in the definition of current users or continuing users. Couple years of protection (CYP) are calculated and used by several countries, but with different conversion factors for each contraceptive method. The concept of CYP is also interpreted differently. Profile analysis of acceptors and drop-outs (or defaulters) is seldom done. While information is usually consolidated at district, regional and central levels, it is ineffectively utilized.

Pap smears and related maternity service data are recorded regularly at local and district level in an array of records but not made available regularly at the national level. Their quality is unknown and utilization very limited. Similarly, child immunization, ante- and post- natal care data are collected at the source of services, but it is difficult from the records to find out how many have completed the full regime and how many dropped out.

Interestingly, however, data are generated for nearly all the indicators that were defined as essential while designing the diagnostic instrument (details are given in annex 1.3). It is, therefore, not surprising that one finds considerable uniformity in the capacities of systems to generate identical data. It is only when one looks carefully at quality, frequency, timeliness, and coverage, that major variations between countries are found. For example, Papua New Guinea and Viet Nam collect the same information as Fiji and Malaysia. However, in Papua New Guinea, information flowing upwards from the periphery relates to number of services delivered while in Malaysia and Fiji, the reports include more detailed profiles of users. Similarly, while there are some routine quality checks in the Malaysia and Fiji, there are none in the other two countries.

Furthermore, the existing system are designed mainly to collect information generated by public sector programmes. Little effort is made to collect information from non-governmental services. Reports by NGOs, particularly by family planning associations, are not always compatible with the government figures and therefore of little use for generating country level statistics. For example in Malaysia, the federation of family planning associations uses reporting performae which are very elaborate and are designed mainly to

meet the information needs of the International Planned Parenthood Federation. The only statistics compatible with the national programme are numbers of acceptors and their characteristics, and the derived numbers of continuing users.

These findings led us to believe that an exchange of experiences in the usefulness and effectiveness of different family planning/maternal child health programme MISs would be of considerable benefit to member countries. We considered also that all parties would benefit from an open discussion about the problems of developing good and viable information systems.

In order to maximize the usefulness of the discussion, the seminar was planned to coincide with the initial findings from the experimental study on FP/MCH MIS in China and India. This timing provided an opportunity to the secretariat to disseminate the methodologies developed and experiences gained in execution of the study. This seminar, therefore, was organized to consider all the issues raised earlier, to share experiences by member governments in the area of FP/MCH MIS, and to raise awareness among programme managers regarding problems of developing good, viable and appropriate systems. The participants for this seminar included programme heads, chiefs of monitoring and evaluation units, and resource persons with experience of development and use of such systems.

B. PARTICIPATION

The list of participants appears as annex 1.1 to this report.

C. OPENING STATEMENTS

The Chief of the Population Division, ESCAP made a statement highlighting the importance of the seminar. He raised some important issues faced by the programme managers of the member countries. He asserted that the seminar would make a significant contribution if it addresses the major problems of the existing management systems such as excessive information collection, limited use of these data for management and insufficient control over their quality. He emphasized the urgent need to resolve these problems, particularly when structures are changing from simple, vertical, service oriented programmes to integrated, multi-purpose, multi-disciplinary family planning and health programmes.

In his statement, he also outlined the objectives of the seminar. He said that the purpose of the seminar was to attempt an in-depth examination of the issues faced by those who were striving to develop a viable and effective FP/MCH MIS in the light of managerial requirements. He mentioned the wide gap that

existed between the information needs of programme managers and policy makers, on the one hand, and the capacity of systems to meet their needs.

Dr. Dal-Hyun Chi, President, Korea Institute for Health and Social Affairs (KIHASA), Seoul, welcomed the participants to Seoul and thanked ESCAP and UNFPA for their initiative in organizing the seminar in the Republic of Korea. He mentioned the importance that the Republic of Korea places on such deliberations and their relevance to the future socio-economic growth of the Asian and the Pacific region. He expressed the need for more clearly defined input, process, and output measure to improve programme monitoring and evaluation. In this regard, he pointed out that some of the experiences of his country might serve a useful model for other participants.

The Chief of the Asia and the Pacific Division, UNFPA, New York, made a statement highlighting the importance that UNFPA attached to the development and strengthening of family planning/maternal and child health MISs. He raised some important issues about the role of regional commissions and agencies in developing and testing new approaches. These regional efforts, he said, should be used to strengthen country programmes. In this regard, UNFPA would like ESCAP and regional advisers and experts in other UN agencies to brief, on a regular basis, UNFPA Country Directors and other staff on their experiences in this and other population programme issues. Regular briefings will encourage wider dissemination and better utilization of these efforts in national programmes.

He noted a changing emphasis in programme execution. The concept of national execution of programmes and self-reliance would be the likely course of the current decade and urged all involved with programme planning, execution and implementation to assist countries in developing their capabilities to achieve this goal.

The Chief of the Fertility and Family Planning Section, Population Division, thanked the participants for accepting their invitations and expressed the hope that they would make valuable contributions through their deliberations and discussions.

D. ELECTION OF OFFICERS

The agenda of the seminar was unanimously adopted by the participants. Mr. Haryono Suyono was elected as Chairman, Mr. S.B. Mishra and Dr. Dhatchai Mungkandi as Vice-chairpersons and Mr. Nam Hoon Cho as Rapporteur.

E. AGENDA

The following agenda was adopted:

1. Opening of the Seminar

2. Election of officers.

3. Adoption of the agenda.

4. Management strategies for family planning/maternal and child health programme adopted by the participating countries: short country statements.

5. The family planning/maternal and child health management information system for programme performance monitoring:
   (a) Programme performance monitoring through service statistics systems in India, and the Republic of Korea;
   (b) Availability, need and utilization of programme input and output indicators in countries where the private sector is actively involved; and
   (c) Involvement of the private sector in the implementation of the family planning programme: past, present and future.

6. Management and programme implications of integrated family planning/maternal and child health programmes:
   (a) The experience of integrating family planning/maternal and child health and vertical health programme and non-governmental organizational activities in India: implications for programme performance monitoring and evaluation; and
   (b) The experience of integrating family planning/maternal and child health and the vertical health programme in Nepal.

7. Recent experiments in developing family planning/maternal and child health management information systems:
   (a) The experimental management information system in the State of Maharashtra;
   (b) The experimental management information system in Harbin Municipality;
   (c) Management information system for FP/MCH Kangwha Health Centre, subcentre and post;

(d) Review of the innovative family planning/maternal child health management information system in India;

(e) Management information system for family planning, its linkages with maternal and child health programmes: An NGO's perspective;

(f) Management issues in 1990s: lessons from International Council on Management of Population Programmes (ICOMP) Project on management information systems; and

(g) Management information systems in the 1990s: a review of the role and perception of ESCAP.

8. The role of family planning/maternal and child health service statistics in programme evaluation:

(a) Advantage and limitations of service statistics system evaluation in the achievement of the intermediate objectives of the programmes; and

(b) The use and necessity of multi-round demographic and health surveys and contraceptive prevalence surveys.

9. Impact and efficiency of family planning/maternal and child health programme: indicators, methodological issues, and new approaches for measuring the impact and efficiency of family planning/maternal and child health programmes.

10. Programme monitoring issues in the 1990s:

(a) Programme performance monitoring issues in the light of changing concepts of family planning/maternal and child health systems; and

(b) Reflections on programme statistics in the context of overall development strategies.

11. Methodological issues in programme evaluation.

12. Panel discussion: management needs in the 1990s.

13. Adoption of the report.

F. DOCUMENTATION

A list of documents is presented in annex 1.2.

G. ADOPTION OF THE REPORT

The seminar adopted its report on 26 June 1990.

H. MANAGEMENT INFORMATION SYSTEMS: AN OVERVIEW

Effective management can have a substantial impact on the achievement of family planning programmes. Family planning services can be effective only to the extent that they meet the needs of individuals, both for information and for obtaining methods. Because conditions and constraints vary, there is no single optimal approach. However, over the years, some key components of success have been identified. One that in recent years has gained a great deal of importance is the MIS. Nearly all the countries of region have developed some kind of MIS. However, the development of these systems has not been uniform and many lack the most basic ingredients for effective programme management.

A common characteristics of MISs in the major countries of the region is the substantial resources and time required to collect, record, process and transmit data that are put to minimal use. For example, related pieces of information may be collected by several different workers in a manner that is uncoordinated, redundant and inefficient. Most systems reflected the needs of centralized vertical programmes. The raw data are often shown in interesting displays in offices, but rarely are they recent enough or presented in a form useful for management control. Typically the data are transmitted several levels higher than the level at which management control can be exercised. They end up as statistical tables published months, sometimes years, after their initial collection. Rarely does the information filter back to workers or lower level managers in such a way that the staff understand why the data are collected and how they can be used to improve their own performances.

The problem is compounded by poor quality of data. Because of lack of proper training of the field staff in data collection procedures and the perception of the workers that data collection represents tedious additional work, the quality of service statistics is generally untrustworthy. Managers hesitate to act upon unreliable information, thus further undermining the usefulness of MISs. Serious distortions may occur when certain items are regarded as accurate, but others inaccurate. For instance, an excessive emphasis may be placed by managers on the number of contraceptive sterilizations performed because these data are considered more reliable than data relating to reversible methods.

The function that distinguishes MISs from all other efforts that yield statistics on programme activities is the use of collected information in management control. It is here, in the failure to apply collected data to decision making, that programmes are particularly weak; and it is in this area that efficiency and effectiveness of systems need to improve in nearly all the countries of the region.

These concerns are not confined to United Nations Agencies. It is clear from the presentations at the seminar and from the country papers in Chapter 2 of this volume that there is now a widespread awareness that many MISs have failed to respond to the evolution of family planning and health programmes. Nearly all countries represented at the seminar have already made or are planning radical reform to their routine recording and reporting procedures.

There is also a widespread consensus about the nature of the challenges facing MISs in the 1990s. In Chapters 3, 4, 6, and 7, problems posed by privatization, integration, the need for localization and community participation are repeatedly mentioned and discussed.

The dominant response, thus far, has been to test new recording and reporting procedures in pilot or experimental schemes. Two such schemes have been designed in collaboration with ESCAP and are described in Chapters 9 and 10. Other experimental schemes are discussed in Chapters 8 and 11. Despite a considerable diversity among them, there are certain common themes. All of them are concerned with reform of procedures at the service or peripheral level. One of their main aims is to cut back wasteful and duplicative form filling by health and family planning workers. In some instances, this has implied tough decisions about the number of indicators that can be monitored and reported upwards. Particularly in integrated programmes, the potential number is almost limitless and the final choice of key indicators inevitably displeases health managers with specialist interests.

A further common thread is the determination to design systems that will help workers to organize services more efficiently. This emphasis is surely vital. Unless those persons collecting the basic data find the data useful and relevant, they will not make a sustained effort to record and report reliable and accurate information.

Most pilot service statistics schemes are founded on the principle of total surveillance. Typically, a baseline census of the catchment population is taken and details are recorded in registers or family folders. In some schemes, a computerized data base is created. All subsequent visits to households are recorded and details such as immunizations of children and contraceptive and pregnancy status entered on the register or folder. This arrangement solves three major defects of most previous service statistics systems. First it fosters an

integrated approach to problem identification and service provision. The layout of the folder or register encourages workers to enquire about both health and family planning matters. Second, it provides appropriate denominators for the calculation of coverage or prevalence levels. Third, it facilitates checking and supervision. This feature is particularly pronounced in the Maharashtra scheme (see Chapter 9), where the household retains its own updated copy of a family folder. Thus a supervisor can go straight to households, ask to see their folders and assess the performance of workers in an entirely independent way.

A further extremely useful feature of most pilot service statistics schemes currently under trial in the ESCAP region is that they permit easy identification of high risk families and individuals. Among maternal and child health specialists, there is a growing realization that a relatively small proportion of families account for a substantial fraction of all childhood deaths. Hence there is a high correlation between risk of death of a child and the risks for other children in the family. There is concern that these families, typically of low educational and economic status, may be omitted from routine service provision, despite the fact that their need is greatest. Surveillance systems, such as those outlined in Chapters VIII, IX, X and XI, can be used to identify high risk groups and encourage a special targeting of services in their direction.

It already seems safe to conclude that surveillance systems, involving an initial total census and regular follow-up visits, are usually a resounding success when tried out in relatively small areas. Worker morale and efficiency improve and there is often a quick impact in terms of service coverage. However, many unanswered questions remain. Can they be replicated at state and national levels with equal success? Can they be adapted for urban populations which are more mobile? Are they suitable for populations where there is a wider choice of family planning and health services?

It seems intrinsically unlikely that systems suitable for, say, rural Bangladesh or India can work well in Seoul or Bangkok. MISs in the ESCAP region will need to diversify in order to meet widely divergent priorities and needs. Towards this end, a simplistic typology of suggested indicators at various stages of programmes development and methods of data collection is proposed. It can serve as the basis for future development of FP/MCH MIS in the region (see annex 1.4).

The typology identifies programme monitoring and evaluation needs at various stages of its development. For illustrative purposes, we have classified FP/MCH programmes into three groups based on contraceptive prevalence achieved: contraceptive prevalence rate (CPR) of below 30 per cent of eligible women; CPR between 30-60 per cent; and CPR above 60 per cent. The typology is divided into three major components: the input; the process; and the output. Under each component, various programme activities are displayed in the form of

indicators and sources of data. These indicators are the most basic and will need further refinement and modification in the light of countries' needs and nature of FP/MCH programmes. While it is recognized therefore that the typology will not necessarily be suited to all possible situations, it will serve as a useful framework for programme development and will provide a very useful basis for discussion. The typology is still in its rudimentary stage and the ESCAP secretariat plans to devote special efforts to further develop and refine it. Also efforts will be made to develop and test appropriate methodologies and analytical techniques to measure the three components (input, process and output). It is expected that such efforts will lead to a more comprehensive understanding and simplification of methodologies to construct relevant and easy to measure indicators leading to improved programme monitoring, evaluation and impact analysis.

Despite the need for diversity, all sound family planning and MCH MISs share certain characteristics. A good system is founded on the following five principles:

i) The system should be simple, easy to implement and function.

ii) It should be designed to serve programme needs and emphasis should be on grass-root performance evaluation and accountability.

iii) It should be flexible enough to adjust to programme changes but robust enough to generate quality statistics.

iv) It should not only serve as a viable check and balance system but should help to develop an environment conducive to programme personnel commitment and motivation.

v) It should be relevant by producing timely outputs.

Annex 1.1

LIST OF PARTICIPANTS

BANGLADESH

Mr. Tofayel Ahmed, Deputy Director (MIS), Directorate of Family Planning, 14 Green Super Market, Green Road, Dhaka

Mr. Mustafa Yasin Khan, Divisional Health Education Bureau Officer, Dhaka Division, Chief Communication Officer, EPI Project, Dhaka

CHINA

Mr. Li Honggui, Director of General Office, State Family Planning Commission, No. 12 Dahusi, Haidian District, Beijing 100044

Mr. Guo Jianzhu, Foreign Affairs Official, State Family Planning Commission, No. 12 Dahusi, Haidian District, Beijing 100044

Dr. Gao Song Tao, Director, Harbin Municipal, Family Planning Commission, No. 133 Shi Toudao Street, Dao Li District, Harbin Municipality

INDIA

Mr. S.B. Mishra, Joint Secretary, (In-Charge, Evaluation and Intelligence Division), Family Welfare Programme), Ministry of Health and Family Welfare, Government of India, Nirman Bhavan, New Delhi, 110011

Mr. R.L. Narasimhan, Director, Evaluation and Intelligence Division, Ministry of Health and Family Welfare, Government of India, Nirman Bhavan, New Delhi 110011

Dr. M.R. Chandrakapure, Director of Health Services, Government of Maharashtra, Bombay 400 001

INDONESIA

Mr. Haryono Suyono, Chairman, National Family Planning Co-ordinating Board (BKKBN), JL. Let: Jen Harjono, P.O. Box 186, Jakarta

Mr. Eddyono Matheus, Chief, Bureau of Reporting and Recording, National Family Planning Co-ordinating Board (BKKBN), JL. Let: Jen Harjono, P.O. Box 186, Jakarta

ISLAMIC REPUBLIC OF IRAN

H.E. Dr. Hossein Malek Afzali, Deputy Minister for Public Health, Ministry of Health and Medical Education, Tehran

MALAYSIA

Madam Leong Lin Chee, Chief, Planning/Administrative Officer, Malaysia/ National Population and Family Development Board, Kuala Lumpur

NEPAL

Dr. Kalyan Raj Pandey, Chief of the Family Planning/Maternal and Child Health Project, Ministry of Health, Kathmandu

Mr. Jayanti Man Tuladhar, Chief, Planning, Research and Evaluation Section, Nepal FP/MCH Project, P.O. Box 2936, Kathmandu

PHILIPPINES

Dr. Alicia B. Osea, Chief, Plans and Program Division, Family Planning Services, Department of Health, Manila

REPUBLIC OF KOREA

Dr. Dal-Hyun Chi, President, Korea Institute for Health and Social Affairs, (KIHASA), San 42-14, Bulkwang-dong, Eunpyung-ku, Seoul 122- 040

Dr. Pyung Yoon Cho, Director General, Bureau of Public Health, Ministry of Health and Social Affairs, Jwoachun, Gwachon City, Seoul

Mr. Hee Youn Byun, Director of Family Health Division, Ministry of Health and Social Affairs, Gwachon City, Seoul

Mr. Sang Yoon Chung, Director of International Cooperation Division, Ministry of Health and Social Affairs, Gwachon City, Seoul

Mr. Moon Sik Hong, Director, Family Planning Research Division, Korea Institute for Health and Social Affairs (KIHASA), San 42-14, Bulkwang- dong, Eunpyung-ku, Seoul 122-040

SRI LANKA

Dr. K. Wickramasuriya, Medical Officer, Ministry of Health, Head of Evaluation Section, Family Health Bureau, No. 231, De Saram Place, Colombo

THAILAND

Dr. Dhatchai Mungkandi, Director-General, Department of Health, and Director of National Family Planning Programmme, Ministry of Public Health, Devaves Palace, 275 Samsen Road, Bangkok 10200

Mr. Suthon Panyadilok, Chief, Analyst and Evaluation Section, Family Health Division, Department of Health, Ministry of Public Health, Devaves Palace, 275 Samsen Road, Bangkok 10200

VIET NAM

Dr. Phan Trinh, Head of Secretariat of National Committee for Population and Family Planning, 138 A Giangvo, Hanoi

RESOURCE PERSONS/EXPERTS

Mr. Monowar Hossain, Former Chairman, Bangladesh Institute of Development Studies, House 24, Road 5, Dhanmandi R.A., Dhaka, Bangladesh

Mr. M.E. Khan, 19, J.M.K. Apartment, Subhanpura, Baroda 390 007, PH No. 321176, India

Mr. G. Narayana, Chairman, Social Services, Administrative Staff College of India, BEELA VISTA, Hyderabad-500 049, India

Mr. Mehtab S. Karim, Associate Professor, Department of Community Health Sciences, The Aga Khan University, Faculty of Health Sciences, Stadium Road, Karachi, Pakistan

Dr. Chung Tae Kim, Vice President of Korea Institute for Health and Social Affairs (KIHASA), San 42-14 Bulkwang-dong, Eunpyung-ku, Seoul 122-040, Republic of Korea

Dr. Jae Mo Yang, Honorable Professor, Department of Preventive Medicine and Public Health, Yonsei University College of Medicine, 134 Shinchon-Dong, Seodaemun-Gu, Seoul, Republic of Korea

Mr. Nam Hoon Cho, Director, Planning and Co-ordination Research Division, Korea Institute for Health and Social Affairs (KIHASA), San 42-14, Bulkwang-dong, Seoul 122, Republic of Korea

Mr. Young Moon Chae, Associate Professor, Department of Preventive Medicine and Public Health, Yonsei University College of Medicine, 134 Shinchon-Dong, Seodaemun-Gu, Seoul, Republic of Korea

Mr. Peerasit Kamnuansilpa, Associate Professor, School of Social Development, Research Center, National Institute of Development Administration, Klongjan, Bangkapi, Bangkok 10240, Thailand

Mr. John Cleland, Senior Research Fellow, Centre for Population Studies, London School of Hygiene and Tropical Medicine, 99 Gower Street, London WC1, United Kingdom

Mr. James A. Palmore, Professor of Sociology and Director, Population Studies Program, University of Hawaii and Research Associate, East- West Population Institute, East-West Center, 1777 East-West Road, Honolulu, Hawaii 96848, United States of America

OBSERVERS

Mr. Saad Raheem Sheikh, Chief, Asia and the Pacific Division, UNFPA, New York, United States of America

Dr. M. Sabwa, Senior Technical Officer, UNFPA, New York, United States of America

Ms. Joung-Im Kim Palmore, Assistant Professor, Department of Communication, University of Hawaii at Manoa, 2560 Campus Road, Room 309, Honolulu, Hawaii 96822, United States of America

Mr. M.A. Sattar, Executive Director, ICOMP, Kuala Lumpur, Malaysia

Mr. Kap Suk Koh, Visiting Fellow, Korea Institute for Health and Social Affairs, San 42-14, Bulkwang-dong, Seoul 122, Republic of Korea

Mr. Ehn Hyun Choe, Director, Population Research Division, Korea Institute for Health and Social Affairs, San 42-14, Bulkwang-dong, Seoul 122, Republic of Korea

Dr. Julien Bertaux, WHO Representative, Seoul, Republic of Korea

Annex 1.2

LIST OF DOCUMENTS

1. "A Management Information System for the Family Planning Programme in Bangladesh", Tofayel Ahmed and Mustafa Yasin Khan

2. "Reflection on Programme Statistics in the Context of Overall Development Strategies", Monowar Hossain

3. "On Management Strategies for China's Family Planning Programme", Li Honggui

4. "Harbin Municipal Government Experiment on Family Planning Management Information System", Gao Song Tao
5. "Management Information System in Health and Family Welfare Programme - Observations from some experimental Projects", M.E. Khan

6. "Family Welfare Programme Performance Monitoring through Services Statistics Systems in India", R.L. Narasimhan

7. "Intra-sectoral Integration and Inter-sectoral Coordination Health and Family Welfare Programmes in India", G. Narayana

8. "The Experimental Health Management Information System (Family Based Approach) Dindori - District: Nashik Maharashtra", M.R. Chandrakapure and S.S. Narvekar

9. "The Development of a Management Information System for the Family Planning Program in Indonesia", Haryono Suyono and Eddyono Matheus

10. "Country Statement - Iran", H.E. Dr. Hossein Malek Afzali

11. "Management Information System (MIS) for FP/MCH Kangwha Health Center, Subcenter, and post", Young Moon Chae

12. "FP/MCH Programmes Monitoring through Service Statistics Systems in the Republic of Korea", Nam Hoon Cho

13. "Availability, Need and Utilization of Programme Input and Output Indicators in Countries Where the Private Sector is Actively Involved", Chung Tae Kim

14. "Involvement of the Private Sector in the Implementation of the Family Planning Programme: Past, Present and Future", Jae-Mo Yang

15. "A Review of Population Programme Implementation and Management in Malaysia", Lin Chee Leong

16. "Family Planning - MCH Programme in Nepal", Mr. Kalyan Raj Pandey

17. "The Experience of Integrating Family Planning/Maternal and Child Health and Vertical Health Programme in Nepal", Mr. Jayanti Man Tuladhar

18. "Management Information System for Population Welfare Programme in Pakistan", Khalil A. Siddique and M.S. Jillani

19. "Management Information System for Family Planning, Its Linkages with Maternal and Child Health Programmes: An NGO's Perspective", Mehtab S. Karim

20. "The Philippines : A Brief Background", Alicia B. Osea

21. "Country paper - Sri Lanka," K.P. Wickramasuriya

22. "The Use and Necessity of Multi-round Demographic and Health Surveys and Contraceptive Prevalence Surveys", Peerasit Kamnuansilpa

23. "Thailand National Family Planning Programme", Dhatchai Mungkandi

24. "Population and Family Planning in Vietnam", Phan Trinh

25. "The Adequacy of Management Information Systems for Programme Monitoring, Evaluation and Research", John Cleland

26. "Population Management Information Systems in the 1990s: Evolution, Revolution, or Recycling in Monitoring and Evaluation Techniques?", James A. Palmore and Joung Im Kim Palmore

27. "Summary of the Findings of the MIS Diagnostic Survey at the Service of MCH/FP Programmes in Selected African, Asian and Latin American and Caribbean Countries", M. Sabwa

28. "Management Information System: ICOMP Experience", G. Giridhar

29. "Regional Situation on Family Planning MCH Programme Management and Information Systems", J. Howard Teel

30. "Programme Performance Monitoring Issues in the Light of Changing Orientation of Family Planning/MCH Programmes", Note by the Secretariat

31. "Metrological Issues in Programme Evaluation", Note by the Secretariat

32. "Family Planning/Maternal and Child Health Programmes Management Information Systems in 1990s: A Review of the Role and Perception of ESCAP", Note by the Secretariat

Annex 1.3.

METHODOLOGY

The data collection instrument used for the "Diagnosis of MCH/Family Planning Management Information Systems" is a structured questionnaire of 45 pages. In each country, as many informed persons or programme implementation agency representatives as possible were interviewed. Their responses were summarized/aggregated. The questionnaire covers the following topics:

1. Percentage distribution of contraceptive users by principal supply sources in the country.
2. Input information for each administrative level obtained mainly from the inventory/accounting system, logistic information systems, personnel information system, supervisors' reports etc. For each type of input information, assessment is made of its "availability, utilization, frequency of production, completeness, reliability and verification checks".
3. Output information for each administrative level obtained mainly from routine service statistics systems (including "products" of the programme such as services delivered, acceptors, current users, coverage etc.) and sample surveys. For each type of output information, questions were asked about "availability, utilization, frequency of production, completeness, reliability and verification checks".
4. Questions asked about constraints impeding the effectiveness of the MIS being reviewed.
5. Programme quality (which refers to how programme activities are conducted and perceived) derived mostly from in-depth reviews, special studies, surveys, focus groups, supervision reports etc. For each type of programme quality information, a set of topical indicators was used to obtain the frequency, utilization and sources of information.
6. Impact evaluation of:
   - family planning on fertility
   - family planning on maternal and child health (MCH)
   - Maternal, infant, parental and neonatal mortality on MCH
   - components of MCH services on MCH programme.

Annex 1.4

Table 1 : Input indicators and their sources by stage of programme and personnel/service outlet/ supplies of FP-MCH services and other materials

Stages of Programmes	Indicators/ sources	Personnel		Service outlet		Supplies of FP/MCH services and other materials						
						Contraceptive methods				MCH supplies		
		Motivational	Clinical	Home	Clinic	Pill/ condom	IUD	Inj.	Others	Ante-natal	Delivery	Post-natal
Initial Stage (CPR<30%)	Indicators :	Number by type and mean duration of training	Number by type and mean duration of training	Number by type of location	Number by type and distance/time taken to the service outlets	Number by method supplied and equipment and materials inventories by location				Number and type of MCH materials for antenatal/delivery/post-natal services supplies (including supporting equipment)		
	Sources :	Routine service statistics from FP/MCH/training/personnel records		Routine service statistics from FP/MCH/administrative records and census reports		Routine service statistics from FP service/logistic/administrative records/reports				Routine service statistics from MCH service/administrative records/reports		
Intermediate stage (CPR= 30–60%)	Indicators :	Above plus number and type of non-programmes (community influentials, private doctors /nurses pharmacists etc.) resources	Above plus number and type of non-programmes (community base distribution, privates doctors/nurses, pharmacists etc.) personnel/resources	Above plus community base distribution and NGOs	Above plus non-programmes outlets	Above plus No by method supplied and buffer stock of contraceptive methods for non-programmes				Above plus MCH service statistics from non-programme or NGO service outlets		
	Sources :	Routine service statistics for FP /MCH/training/personnel records from programme and non-programme service outlets		Routine service statistics from FP/MCH/administrative records and census reports from programme and non-programme service outlets		Routine service statistics from FP service/logistic/administrative records/reports from programe and non-programme service outlets/rapid/ mini surveys				Routine service statistics from MCH service/administrative records/reports from programme and NGO service outlets		
Final stage (CPR>60%)	Indicators :	Number and type of Mass media messages for FP/MCH		Accessibility of services and Method choices		same as above						
	Sources :	Routine service statistics and special mass-media impact studies/surveys		Periodic studies of impact of service outlets		same as above						

Table 2 : Process indicators and their sources by state of programme and IEC/Follow-up and counselling activities

Stages of programme	Indicators/ Sources	IEC			Follow-up		Counselling	
		Meas Media	Community	Interpersonal	Motivational	Clinical	Information	Behavioral
Initial Stage (CPR<30%)	Indicators :	No. of materials /sessions. No. of participants per session materials by type distributed their coverage	No. of IEC activities by type. No. of community influentials involved in IEC by type and materials and their coverage	No. of IEC activities by type and their coverage	No. of motivational activities followed up. Per cent of delinquent cases followed up.	No. of clinical activities followed up. Per cent of delinquent cases followed up.	No. of information counselling by type. No. and type of counselling materials distributed and their coverage	No. of behavioral counselling by type. No. and type of behavioral counselling and their coverage
	Sources :	Routine service statistics, administrative/personnel records, IEC record forms, and census reports			Routine service statistics, administrative/personnel records, clinic follow-up records and IEC records/ reports		Routine service statistics, administrative records, counselling records/ reports, IEC/clinic records/reports, and census reports	
Intermediate stage(CPR= 30-60%)	Indicators :	Same as above		Above plus mother's club activities and other NGOs activities	Above plus loss to follow-up and reasons in programme and non-programme sectors	Above plus loss to follow-up and reasons in programme and non-programme sectors	Same as above	Above plus per cent lost to follow-up and reasons
	Sources :			Above plus rapid /mini surveys	Above plus rapid/mini follow-up surveys		Above plus rapid/mini follow-up surveys	
Final stage (CPR>60%)	Indicators :			Same as above	Same as above			
	Sources :							

Table 3 : Output indicators and their sources by stage of programme and coverage/target achievement/programme efficiency and impact

Stages of programmes	Indicators/ Sources	Coverage	Taget achievement	Efficiency	Impact
Initial Stage (CPR<30%)	Indicators :	Level of FP/MCH knowledge No. of couples motivated No. of FP acceptors and MCH users	Per cent of population covered by FP/MCH programmes Per cent targets achieved	Couple Years of Protection (CYP) by characteristics No. of active users and drop-out rates	–
	Sources :	Routine service statistics and periodic KAP surveys	Routine service statistics and periodic KAP surveys	Routine service statistics and periodic KAP surveys	–
Intermediate Stage (CPR= 30-60%)	Indicators :	Level of effective knowledge Per cent coverage of FP/MCH services by characteristics and sources of services/supplies Per cent of MCH users completed required regiment	Same as above	Identifying low performing areas and reasons for low performance Cost-efficiency of services provided(programme and non-programme)	Changes in CYP Changes in trends and patterns overall acceptance (including behaviour and attitudinal changes)
	Sources :	Routine service statistics, census and periodic demographic and health surveys	Routine service statistics and periodic demographic and health surveys	Routine service statistics and administrative records. Qualitative studies (including anthropological studies and focus groups etc.)	Routine service statistics and administrative records. Qualitative studies (including anthropological and focus groups etc.) Period rapid/mini surveys at local levels.
Final Stage (CPR>60%)	Indicators :	As above plus per cent unmet needs (including underprivileged and underserved groups)	Programs and policies to reach the subgroups of population with unmet needs. Improved quality of FP/MCH services		Changes in fertility infant/maternal mortality levels Demographic health surveys censuses, qualitative studies and rapid/mini surveys
	Sources :	Special rapid/mini surveys and quantitative-experimental studies and qualitative studies	⟶		

Chapter 2

MANAGEMENT INFORMATION SYSTEMS IN SELECTED COUNTRIES*

Information about the strengths and weaknesses of MISs in specific countries of the region comes from two sources: the UNFPA funded diagnostic exercises, already mentioned in Chapter 1; and the papers presented by country participants at the seminar.

One of the striking findings of the diagnostic exercises is the weakness of most MISs in reporting input data. Most of these data are available at the peripheral level, but they are rarely reported upwards. All too often, middle-level and senior managers do not possess up-to-date information on facilities, staff vacancies, equipment, vehicles, supplies and so on. Thus they are unable to relate achievements, or outputs, to inputs at provincial or district level. This defect represents a crippling disadvantage for decision making. Poor performance in a particular area may be caused by inadequate inputs, for instances a high level of staff vacancies or lack of vehicles. Alternatively, it may be caused by inefficiency of workers or poor supervision. For proper management, it is essential to be able to distinguish the possible reasons for variations in district-level performance. Yet many MISs fail to provide the necessary data for these essential managerial judgments.

Lack of financial input data is a particular problem. While nearly all programmes possess a financial reporting system, these records are rarely integrated with other service reports. Managers are typically unable to undertake even rudimentary cost: output analyses at local level. These difficulties, of course, are greatly increased in integrated programmes, where it becomes almost impossible to separate family planning from health expenditures.

A second area of concern highlighted in the diagnostic exercises concerned quality and impact information. User perceptions of services and satisfaction and other indicators of quality cannot be gathered and reported in a routine manner, but have to be obtained from special studies. Regrettably, most programmes have devoted little attention to this aspect of MIS, despite its potential value in identifying defects in services. While qualitative evaluation is never easy, it is by no means impossible. What is required is a range of research studies, conducted both by programme and independent investigators, that with

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* Prepared by the ESCAP secretariat.

permit a broader and more comprehensive assessment of programme strengths and weaknesses, than is possible through conventional reporting systems.

This rest of chapter contains reviews of Management Information Systems of five countries. These are based on summaries of the papers presented by national participants and were selected from a wide range of country papers to illustrate some of the major issues and future directions.

A. BANGLADESH

Background

The official family planning programme came into being in 1965 when the Government, recognizing the urgency of moderating the growth of population as an influence on variable of economic development, adopted it as a public sector programme. The Government created a separate Division of Family Planning in the Ministry of Health, Labour and Social Welfare along with a board for implementing family planning activities.

In 1976, a population policy was outlined, operational strategies worked out, specific field programmes were developed, and organizational, administrative arrangements made for implementing the programme. These were incorporated into the subsequent Five Year Plans. The Government's broad demographic goal is to achieve a net reproduction rate of one by 2005 AD with targeted reduction of birth rate through a series of intermediate Five Year Plans. Considerable progress towards this goal has been made. The total fertility rate has fallen from over seven births per woman to under five. Most of this change is attributable to rising levels of contraceptive practice. In 1989, about 32 per cent of all married couples aged 15 to 49 were using some method of contraception.

Summary of MIS activities

An MIS Unit collects, compiles, collates and analyses the monthly contraceptive performance statistics from all the government, non-government and multisectoral performing organizations operating in the country. It also collects the monthly MCH clinical and domiciliary performance reports from all the government functionaries and publishes a consolidated MCH report. Contraceptive performances are analyzed showing achievement against method-specific target by district and Upazila, thereby providing important feedback for management and monitoring to programme managers. The MIS Unit has established a hierarchical system of performance reporting beginning from the field level up to the national headquarters. These service statistics are subjected to periodic validity and reliability checks.

The Unit compiles and reviews the figures submitted by NGOs and multisectoral organizations and shows separately the performance in the monthly report. It displays programme information and statistics and serves as a briefing centre. In addition, it maintains a two-way flow of information between the national headquarters and the field through a telephone booth. Data tapes from major national studies are preserved and supplied to other agencies and individuals engaged in research and publications.

In order to achieve demographic goals, a national target is set by the Planning Commission and the MIS Unit distributes method- wise targets to different districts, Upazilas and unions after considering factors such as the number of eligible couples, previous year's performance and existing prevalence.

Critique of the old MIS

Management of the Government family planning programme has suffered from inadequate and unsystematic flow of reliable and continuous information from the field. Lack of appropriate data is also a serious handicap in assessment of the impact of the family planning programme.

During the past few years a number of reporting systems have been tried by the Directorate of Family Planning. Under these systems, different types of cards and forms were designed to meet data requirements but none fulfilled the objective entirely. Moreover, as repeated administrative changes occurred in response to evolving ideas about the shape and scope of family planning programme in Bangladesh, there was no clear definition and understanding of data requirements.

Programme monitoring has depended largely on the monthly performance reports received from the Upazila family planning officers. These reports, which are known as service statistics, are based in some instances on contraceptive services and, in others, on the quantities of contraceptives distributed. Thus the reports contained information about the number of sterilizations performed and IUDs inserted; but in the case of contraceptives such as oral pill and condom, the reports provided information only on the quantities distributed. Accordingly the MIS Unit used the CYP (couple-years of protection) as the basis for performance assessment. This estimate was used to provide feedback to programme managers as a part of monitoring field performance. But CYP is an inaccurate indicator for several reasons:

- it is based on contraceptive distribution (an output measure) irrespective of its use (an impact indicator);
- the conversion factors used (e.g. 150 condoms = 1 CYP; 15 cycle of pills = 1 CYP and 4 doses of injectable = 1 CYP)

have not been validated and may overestimate the amount of protection provided; and

overreporting and underreporting are common.

In addition, the CYP concept encourages field workers to focus on recruiting new acceptors rather than on promoting continuous use, a fact that may be contributing to high discontinuation rates.

The vital registration system in the country is still cumbersome and unreliable. Overall health statistics remain inadequate and sketchy. The family planning programme, though relatively of recent origin, was still struggling hard for development of a reliable system. In the area of MCH, the data were more uneven, incomplete and inconsistent.

Development of a new field workers' record keeping system

In response to these problems and defects, the Government has introduced a new field worker's record keeping system. It will replace all previous service statistics procedures in the family planning programme.

The new system is based on a complete registration of all eligible couples. Details are entered in a register. As can be seen in Figure 2.1, the register is designed to record both family planning and MCH activities. Dates of birth of all children under age of two years are shown, together with immunization status. There is space to record the outcome of 18 home-visits. At each visit, the menstrual or pregnancy status of the women and her contraceptive status (including complaints about side-effects) should be entered. There is also provision to record follow-up or referral details and comments about maternal and child care.

This new record keeping system will yield sufficient programme data for planning, monitoring and policy formulation. Field workers will keep track of all eligible couples in their assigned catchment areas. Data on current use of contraceptives will be recorded in the field worker's register. This information can be aggregated to derive estimates of contraceptive prevalence at village, ward/unit, union, upazila, district, division and national levels. This will also allow the programme to set reasonable and individualized family planning targets for each administrative level. This system will replace the current CYP measure. In addition, pregnancy, birth and death statistics will also be generated through the system. It is hoped that this new system will hopefully, satisfy many of the most basic requirements of the family planning planners in the country.

Figure 2.1. Field Worker Register (for FWA)

<table>
<tr><td colspan="2">House Hold No.</td><td colspan="3">Mouza</td><td colspan="6">Village</td><td>Visitation Date</td><td></td></tr>
<tr><td colspan="2" rowspan="3">Couple No.</td><td colspan="3" rowspan="2">E/Woman Name</td><td colspan="2" rowspan="2">Age :</td><td colspan="4">T.T. Status</td><td rowspan="2">Menstrual & Pregnancy Status</td><td rowspan="2"></td></tr>
<tr><td colspan="2">1st</td><td colspan="2">2nd</td></tr>
<tr><td colspan="3">Husband's Name</td><td colspan="2">Age :</td><td colspan="2"></td><td colspan="2"></td><td>Contraceptive Status</td><td></td></tr>
<tr><td colspan="2" rowspan="2">Children Alive</td><td>Male</td><td colspan="8" rowspan="2">Contraceptive History :</td><td rowspan="2">Side Effect</td><td rowspan="2"></td></tr>
<tr><td>Female</td></tr>
<tr><td rowspan="5">Vaccination Status</td><td rowspan="2">0-2yrs Children</td><td rowspan="2">Date of Birth</td><td colspan="3">DPT</td><td colspan="3">Polio</td><td rowspan="2">Mea-sles</td><td rowspan="2">BCG</td><td rowspan="2">Follow-up/ Referral</td><td rowspan="2"></td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>1</td><td>2</td><td>3</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td rowspan="2">Maternal Care</td><td rowspan="2"></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Child Care</td><td></td></tr>
</table>

B. INDIA

Background

The Government of India was the first in the world to adopt a national family planning programme as a major input into socio-economic development. Although the programme was started in 1952, it gained real momentum in 1966-67 when it was made target oriented and a fully fledged Department of Family Welfare in the Ministry of Health and Family Welfare was set up to administer this programme. The programme is of voluntary nature and continues to enjoy the status of centrally sponsored scheme under which full financial assistance is given to the implementing agencies. While the programme is implemented through various States and Union Territories, policy, technical, logistic support and financial assistance continues to flow from the central Ministry of Health and Family Welfare (Department of Family Welfare) to the States.

In the late 1970s, under the integrated approach to health and family planning programmes with special emphasis on immunization and nutrition for mothers and children, the programme was re-named the "Family Welfare Programme". Its major objectives are to reduce the birth rate and to reduce morbidity and mortality, particularly among children and women. This promotion of health of mothers and children should create a sense of security in the minds of the parents that their children will live a healthy and longer lives, thus increasing the willingness to limit family size.

Over the years, the Couple Protection Rate (CPR) has been consistently rising: from 29.5 per cent in March 1984 to 42.6 per cent by March 1990. Of the 42.6 per cent of the total eligible couples (142 million) effectively protected in the country at March 1990, 30.1 per cent were protected by sterilization, 6.2 per cent by IUD, 4.9 per cent by conventional contraceptives and 1.4 per cent by oral pills. About 118 million births are estimated to have been averted since the inception of Family Welfare Programme till the end of March 1990.

According to the estimates from the Sample Registration System, the birth rate at the national level has declined from 33.9 per thousand population in 1984 to 31.5 in 1988. In the same period the death rate came down from a level of 12.6 to 11.0. The infant mortality rate has also fallen from a level of 104 per 1000 live births in 1984 to 94 in 1988. However, the annual rate of population growth continues to be still alarmingly high (over 2 per cent).

The major long term goal is to achieve a net reproduction rate of 1.0 by the year 2000 AD. The demographic goals as laid down in the National Health Policy for the year 2000 include a crude birth rate of 21 and a crude death rate of 9 per thousand population.

Overview of the current monitoring and evaluation system

A well developed system for monitoring and evaluation has been created. At the central level, an Evaluation and Intelligence Division in the Department of Family Welfare is responsible for carrying out continuous monitoring and evaluation of the programme. For this purpose relevant statistics are collected from various States. The performance data are collected and compiled primarily at peripheral levels such as the Primary Health Centres, Urban Family Welfare Centres/Hospitals/dispensaries and sent to the next level, the District Family Welfare Bureau. These district bureaus in turn compile for all their units and send reports to the State Family Welfare Bureau (Demographic & Evaluation Cell). The reports on monthly progress of performance received from all the States are analyzed each month at the Centre. While the analysis at the Central level normally takes the States and Union Territories as the unit of analysis, similar analysis at the State level is carried out by taking districts as units.

Record keeping is interlinked with the reporting system. For collecting basic information about the general population, each Family Welfare Centre (rural or urban) is required to carry out a complete family census of the areas under its jurisdiction, listing all households and household members with their socio-economic and demographic particulars. An Eligible Couple Register is also prepared to keep a record of all currently married women in the age group of 15-44 years. This Register provides information on name, age, number of living children, age of youngest child, pregnancy status, use of family planning methods and results of follow-up visits. It is updated during follow-up visits and annual surveys. Annual surveys for updating these Registers are carried out during April-June by peripheral workers under the intensive supervision of supervisory staff such as Lady Health Visitors, Basic Extension Educators and Medical Officers of the respective centres. This Register helps the field health workers to maintain regular contact with the eligible couples for follow up and motivational purposes and to decide the priorities for motivation and service provision. It also helps in checking the accuracy of various demographic and socio-economic characteristics of the acceptors of family planning methods recorded at health centres.

In addition to the family survey and Eligible Couple Registers, the following primary registers are also maintained by each Family Welfare Centre on the following activities; daily clinic services; issues of conventional contraceptives (CCS) and stocks; sterilizations and IUD insertions; immunizations; ante- natal visits; vitamin A, folic acid and iron distributions.

A set of standard proformae is prescribed for submission of returns on the progress of work done by family welfare centres. Each centre has to furnish monthly/quarterly reports to the agencies at the next higher level. The following monthly reports on the number of service units and their performance are in use:-

P-1 Form: This contains information regarding sterilizations and IUD insertions from all levels. It is prepared separately for urban and rural areas. It is a two-way table where performances of Family Planning units is shown by sponsorship (that is, run by State, local bodies, or voluntary organizations) and by type of unit (Family Welfare Centre, mobile camps, private practitioners, hospitals, dispensaries etc.)

P-2 Form: This has been prescribed for the collection of information regarding conventional contraceptives CCs and is similar to P-1.

P-3 Form: This is a combined form for all family planning methods to be used by peripheral units such as CC distribution centres, sub-centres, hospitals etc. The performance statistics from These peripheral units are consolidated in the PHC/Urban Family Welfare Centre and monthly figures on performance are sent to district Family Planning Bureaus in forms P-1 and P-2. District-wise performances are consolidated at the State level in forms P-1 and P-2 and these are ultimately sent to the Department of Family Welfare at the Centre.

Separate monthly progress reports on oral pill programme, medical termination of pregnancies (MTP) have also been prescribed. The monthly report on MTP provides break-up of acceptors by duration of pregnancy, religion, reasons for termination, termination with acceptance of contraceptives and so on.

Monthly returns on performance by maternal and child health services are also received from each centre. These returns report the number of beneficiaries immunized against Tetanus Toxoid (TT) among pregnant women, TT for children (10 years and 16 years), number of infants immunized against DPT, Polio, BCG and Measles (dosewise), DT for children (5-6 years), beneficiaries covered under prophylaxis against nutritional anaemia (children and women), prophylaxis against blindness among children caused by Vitamin "A" deficiency (dosewise).

Telegraphic advance information giving monthly performance figures of all the family planning methods and five immunization programmes (viz. TT(PW), DPT, Polio, BCG and Measles) is required at the Central level from the States by the 7th day of the following month. Detailed information is supplied in the prescribed monthly proformae in case of family planning methods and MTP by the 20th and in case of MCH programmes by the 25th day.

In addition to monthly progress reports, a number of quarterly and annual reports are also received from the States/UTs in the Department of Family Welfare.

Regular monthly, quarterly and annual analyses of the trend of performance as well as the extent of target achieved is made and feedback to the States sent. Follow-up letters pointing out the shortfalls, if any, and highlighting

the need to improve the programme are sent at appropriate levels at regular intervals. Various officials also visit the States, discuss the level of performance with the State officials, make peripheral field visits, review the problems and constraints faced by the States, and suggest remedial measures. Periodically, meetings at Secretary and Minister's levels are also organized to take stock of the situation of those states whose performance is not satisfactory in order to identify bottlenecks and suggest ways and means to improve the performance. Parallel evaluation and feedback is done at the State level, by Demographic and Evaluation Cells which analyze District-level performance.

To assess performance and impact a number of direct and derived indicators are used. While analysis of data on the number of sterilizations and IUD insertions does not pose a problem, it has become necessary to estimate the number of CC users indirectly. As it is difficult to keep track of the regular users of different types of CCs, the number of users is derived from the number of contraceptives distributed in an area during a period of time. The number of users of a particular method is estimated by dividing number of units distributed by the number of units required for protection by an acceptor during a year. This annual requirement is taken to be 72 in case of condoms, 2 for diaphragm, 7 for jelly/cream tubes, 72 for foam tablets and 13 for oral pill cycles. The above deflators, that is the numbers of pieces of different types of CC needed by an acceptor during a year, have been estimated on the basis of local surveys on contraceptive practices of couples. While they should be accurate at the national level, considerable variations between States and areas have been noticed.

Two important indicators are calculated on a regular basis to assess the overall impact of the family planning programme. These are: the percentage of couples currently and effectively protected against risk of conception; and number of births averted by the programme.

These indicators are estimated separately for each method since the nature and extent of protection provided varies from one method to the other. The net number of couples protected in a year is obtained by adding those who are practicing family planning in the current year to continuing users from previous years, minus those who have dropped out because of: (1) mortality or widowhood; (2) exit from the reproductive ages; (3) removal and expulsion of IUD; and (4) failure of the method.

For calculating the number of births averted, a cohort of acceptors (comprising sterilization cases, IUD wearers, other users) is followed till their exit on account of various factors mentioned above. The births that would have occurred to the cohort in different years are estimated in accordance with age-specific fertility rates. More specifically, calculation of the number of couples protected and the number of births averted is based on estimates of the following parameters:

(1) age distribution of acceptors of sterilization and IUD method;

(2) future level of mortality so as to determine the probability of couples remaining alive and staying in the currently married state;

(3) attrition rates due to removal and expulsion of IUD;

(4) failure rates of different methods; and

(5) marital age-specific fertility rates.

A final commonly used indicator is 'equivalent sterilizations'. This is the weighted sum of sterilization and IUD acceptors and of oral pill and CC users. The weight are 1,1/3, 1/9 and 1/18 respectively. These are more or less in proportion to estimates of the number of births averted per acceptor or user of different methods. It has been estimated that on an average, 2.01, 2.03, 0.45, 0.24 and 0.12 births are averted per acceptor/user of vasectomy, tubectomy, IUD, oral pill and CC, respectively, under the conditions of India. This concept of 'equivalent sterilization' per 1000 population is used for comparison of performance between different States/districts over different periods of time.

In order to verify reported performance, the eligibility status of acceptors and the status records and returns at the peripheral level, eight evaluation units have been set up under the direct administrative control of the Central Department of Family Welfare (E & I Division) to carry out sample checks in their respective zones. On the basis of sample verification, irregularities observed and spot-lighted are communicated to the State. In addition, Regional Directorates functioning under the control of the Central Ministry of Health and Family Welfare have also been involved in the task of field sample verification.

A number of independent evaluations of the programme are also organized through various governmental, autonomous and non- governmental organizations. Very recently an All India Survey on Family Planning Practices was carried out by the Operations Research Group, Baroda. Surveys on fertility and family planning conducted by National Sample Survey Organization and Sample Registration System of the Registrar General, also provide independent evidence of the efficacy of the programme. Demographic and communication research is organized through a network of 18 Population Research Centres, most of which are located in universities, and reputed institutes which undertake fertility, attitudinal follow up and other surveys from time to time. The findings of the surveys are regularly fedback to the programme administrators both at the Centre and State levels.

The existing system of monitoring has been providing a quantitative assessment of the programme achievements supplemented by some qualitative

evaluation. However, with a view to bring about rapid improvements in programme organization and delivery of services, an appropriate mechanism to audit the inputs and processes has been a felt need. Accordingly, a scheme of concurrent evaluation of the programme has been designed. The objective is to have a continuous feedback on the state of the programme every month from selected areas spread all over the country. Under the scheme, 19 districts are selected every month from 17 major States in the country. Quantitative and qualitative information will be collected from the sample units through structured schedules and questionnaires by interviewing beneficiaries and other households. This will cover the contraceptive practices and demographic particulars of acceptors, level of motivation, infrastructural facilities (including training of manpower), perception and utilization of services, problems experienced, reasons for non-participation and the scope for future acceptance in case of non-acceptors. All the districts in the country will be covered under the concurrent evaluation over a period of time and repeat cycles will be organized as may be necessary.

Defects and areas for future improvement

Although the existing monitoring and evaluation system is meeting the main needs of the programme, there are still certain areas that need to be further strengthened. One of the important lacunae in the whole endeavour is the lack of information concerning programme impact on maternal and child health. Under the present system, data regarding the number of beneficiaries of the immunization and prophylaxis programmes are collected every month. They permit monitoring of performance trends but do not allow calculation of immunization coverage achieved among infants at risk. Reliable estimates of infant mortality, maternal mortality and morbidity at geographical levels lower than States are not yet available.

The impact of the family planning programme in terms of fertility and mortality rates under the existing system is measured generally through the estimates at the State level. The impact of the programme at district level has not been possible, as the fertility and mortality indicators at this level are not available. Moreover, up-to-date information on socio-economic factors such as literacy rates, age at marriage and population composition are only available through the decennial census. There is thus a need to collect such data through frequent surveys to measure the impact of non-programme as well as of programme factors.

There is also a need to collect regular information from surveys on the pattern of use of conventional contraceptives and oral pills so as to have a realistic measure of regularity of usage and drop-out rates. In case of IUD acceptors also, there is a need to collect information systematically on discontinuation rates and reasons thereof. It is also imperative to monitor and

evaluate the logistics of supplies of conventional contraceptives and oral pill cycles. Other important gaps in the available data base concern induced abortion, use of traditional methods of contraception and breast-feeding.

Although the present monitoring and evaluation system is quite timely, there exists scope to reduce the time lag in reporting, Once the envisaged plans for computerization of data at district, State and Central level are implemented, substantial improvements in the speed of reporting, aggregation and feedback should be possible.

The Department of Family Welfare is well aware of these and other defects in the management information system. Hence a range of new approaches is being tested in various States. A full account of these experiments are discussed elsewhere in this volume.

C. INDONESIA

Background

In 1990, Indonesia's population reached a total of approximately 180 million people, which includes more than 30 million couples eligible for family planning, distributed among 13,000 islands extending over an area 3,400 miles wide.

The population, which stood at 60 million in 1930, increased to 97 million by 1961 and then to 120 million by 1970. Between 1961 and 1971, the population grew at the rate of 2.1 per cent per annum, a rate that increased to 2.3 per cent for the period 1971- 1980. This was mainly due to declining mortality and a substantial increase in the proportion of young married couples in the population. By 1980, the total population had swollen to 147 million, with a doomsday projection of a tripling of the population within 40 years.

But encouragingly, between 1980 and 1985, the population began to grow at a slower rate, 2.1 per cent, and further decline was observed owing to a large increase in the number of eligible couples practicing family planning. Despite this achievement , according to the latest projections, by the year 2000 Indonesia could well have between 215-217 million people, if increased efforts are not made to promote family planning.

To provide a short description of the management information system used by the National Family Planning Programme, it is necessary to briefly look at the history of the programme. At the beginning of the 1950s, a number of medical specialists, doctors, midwives and others concerned about maternal and child health care came together and decided to begin promoting what they then

called **"Keluarga Berencana"** or family planning. This decision helped to encourage the establishment of an organization in 1957 which called itself **"Perkumpulan Keluarga Berencana Indonesia"** (**PKBI**) or "The Indonesian Planned Parenthood Federation", which has developed many family planning activities and remains active in the family planning programme.

By 1966, the government began to give fresh impetus to family planning activities and eventually in 1967, the President joined 29 World Leaders in signing the World Population Declaration, thus marking the commitment of the Indonesian government and people to deal responsibly with population affairs. Since that time, concrete and systematic measures have been taken by the government. In 1970 an official government body, The National Family Planning Coordinating Board or **Badan Koordinasi Keluarga Berencana (BKKBN)** was formed to develop, coordinate and manage the Indonesian Family Planning Program.

In a study conducted at the end of 1987 by the Central Bureau of Statistics and the Demographic and Health Survey project in 20 of Indonesia's 27 provinces, containing 93 per cent of total population, it was discovered that around 95 per cent of all married women were aware of at least one modern family planning method. The same study revealed that 65.2 per cent of ever married women from the same sample areas have used contraception. Out of that group, 94.5 per cent have used a modern contraception method. The number of these active acceptors of family planning has been very encouraging. They, in turn, have helped to convince others to adopt family planning, utilizing a variety of different contraceptive methods originally offered only at family planning clinics and hospitals.

Since we were still not satisfied with the rate of increase in family planning acceptors, the programme decided to bring the services to the people in their own homes. Thus began the first development phase of the programme, that is, the expansion of ***programme coverage*** which was aimed at raising the conscious need and desirability of family planning, to promote the small, happy and prosperous two-child family norm throughout Indonesia and to provide the supply and resupply of contraceptive products throughout the villages of Indonesia.

During the first five to ten years of this period, we concentrated on expanding the programme to include as many new acceptors as possible, through the creation of village networks such as the **PKK**, the Women's Welfare Association; the **Pos KB** or family planning posts; and the ***Kelmpok Ibu-ibu*** or mothers' clubs for family planning. Our indicators of success were the growing numbers of new acceptors for family planning and the numbers of people or institutions starting to work for family planning. In terms of medical services, the

network of family clubs was supported by family planning clinics all over the country.

With so many acceptors joining the programme, efforts were then concentrated on making sure that all were adequately cared for, and that once someone became an acceptor, they would remain an active acceptor. This brought us to the ***programme maintenance*** phase, which included increased visits by field workers and mobile family planning teams, the integration of family planning with other health activities, and the improvement of contraceptive services by giving people more choice of methods while simultaneously assisting them to better understand which methods are most appropriate.

The third phase of the programme was devoted to making family planning a genuine community activity, that is, a community movement, integrated into the economic and social fabric of community life. Family planning clubs were formed and began to take on responsibility not only for family planning motivation, but also for integrated health and nutrition activities, income- generating activities, and the like. This can be described as the ***institutionalization phase of the programme,*** in which the people, themselves, manage their own family planning programme.

We have recently entered a new, and extremely challenging phase of the programme. Many acceptors have become sufficiently convinced of the value of family planning that they are willing to go to private doctors and midwives for family planning services, paying for these services themselves. These people are willing to accept responsibility for payment for services which they could receive free at public clinics. These first seeds of self reliant family planning or **KB Mandiri** began to grow in 1984-1985 with the introduction of Alih Kelola or sharing of responsibility with honour - the first signs of management of family planning ***WITH*** the people. This was also the time when professionals - doctors, midwives and pharmacists - began to show signs that they were eager and ready to begin a new kind of family planning, to join with the family planning programme in a more active way and take on some of the responsibility for managing family planning services themselves.

Development of a management information system

In line with the development of the Indonesian Family Planning Programme which now reaches almost all villages and all segments of the population, the evolution of the Management Information System has followed certain specific phases. The original idea was simply to support clinical services and help management to better serve family planning acceptors. As the programme became more complicated, many questions arose that could not be decided by intuition, so that management was forced to refer not only to in-country data, but also to the experiences of other countries. This was the

beginning of tireless efforts to strengthen the network of library and reference materials.

As many management personnel were not necessarily aware of the availability of all these resource materials, a new philosophy to encourage programme personnel to make use of data and information had to be developed and implemented. The policy of stimulating people to think, to read, to analyze data and information, to apply and make use of information, has become an important feature in the development of the MIS for family planning in Indonesia.

As family planning progressed through the several different phases mentioned above, so did the sources of primary data for management decisions. While the programme was in the process of early expansion, the two main sources of primary data for the MIS were the results from the reporting and recording mechanism and survey data from evaluation studies.

In cases where primary data were not available or otherwise too expensive to collect through routine statistical reporting, the BKKBN commissioned other research units to do surveys and evaluation research. Otherwise we did our own in-house studies for management use. Internal statistics were compiled as part of the regular reporting and recording of programme activities such as clinical services and promotional campaigns. This type of reporting is usually referred to as service statistics.

The original family planning service statistics as developed in the 1970s were very simple and were used mainly for the monitoring of contraceptive services in the clinics. Since then the system has grown in size and complexity through a long process of exploring the linkages between services and other supporting factors, and the satisfaction of family planning acceptors.

As the BKKBN instituted village family planning services, including mother's clubs, the information systems network was modified to monitor the quality of village-based service delivery. Further modification occurred when "beyond family planning" services were launched, as an effort to strengthen community organizations and individual participation. Information was needed to track nutrition activities, community loans for income generating activities, and others. The scope of the MIS became more complicated. As the programme developed, responsibility for the management of services was shifted from programme personnel to community volunteers and groups. To understand the whole movement, further elaboration and identification of data sources and the need for better data management had to be addressed.

In addition to the development of primary data sources, the MIS has also relied on secondary data drawn from the findings of the research and evaluation efforts of other programmes. The development of these sources of secondary

data goes beyond simply collecting materials and filing them in libraries. The programme has developed a network of libraries across horizontal interests in population and vertical applications from the provincial to the grassroots levels.

This network of secondary data has also managed to overhaul the old philosophy of library materials presentation by making the material available to the grassroots levels, often before the need is realized. Currently, a network of libraries supplies secondary data resources across the country and mobile information centres provide materials directly to the users.

The objective of the MIS is to provide data and information on programme implementation in a quick and precise manner, to be used as the basis for decision making by management at the central, as well as at the regional level.

The system itself is well integrated into all phases of the management process, and produces information that is specific and detailed enough to provide both upper and lower level managers with a complete picture of performance, enabling them to make intelligent decisions. The system is also sufficiently simple and standardized so that much of the primary data can be collected by lower level field workers.

All secondary materials are arranged in a manner to accommodate and facilitate the collection of the rich resources that are produced internationally. For this reason, the Indonesian Family Planning Library and Information Network is linked with other internationally known information networks.

The contraceptive reporting and recording system consists of two sub-systems:

(a) The Clinic Recording and Reporting Sub-system.

(b) The Village Contraceptive Distribution Center (VCDC) Recording and Reporting Subsystem

From these two sub-systems, various data concerning the efforts of the contraceptive services are recorded and reported in a specific manner and at a specified time. The overall activities and results of the contraceptive services are essentially described in the variables of the Clinic Monthly Report. This information is then collected and analyzed to evaluate the activities of the service units, the quality and results of the services they provide and the degree of family planning acceptance by various groups in the community.

The collection, processing and presentation of statistics for field control have been developed into the Recording and Reporting Sub-System for Field Control. This system is especially designed to deal with the recording and

reporting of information on family planning activities in the field other than those concerning contraceptive services. The specific aim of this system is to collect information on the performance and potential of non-clinical family planning workers, the activities and results of village mobile teams, the performance of supervisors, and the outputs of various group activities including generating schemes, family health and nutrition programmes, preschool guided projects, and youth activities for family planning.

To improve the quality of field activities, it is necessary to have an up-to-date map of all eligible couples, that is, fertile couples, in the community. This up-to-date recording and mapping of eligible couples has been developed in what is called The Eligible Couples and Family Planning Acceptors Registration Subsystem.

The system is designed to deliver an accurate data base concerning the numbers of the eligible and family planning acceptors at a specified locality. These figures and maps are needed for operational planning to set targets, plan field visits and provide appropriate supervision at each level.

Registration includes all permanent and prospective residents of each neighborhood, and takes place once every year between mid- May and mid-June, so that the results are available to revise local maps each calendar year.

In some cases, routine statistics are not sufficient to evaluate the performance of the Indonesian Family Planning Programme, and therefore other survey materials will be employed. A major source of evaluation data is the population census which is conducted every ten years, and other routine studies such as the Fertility and Health Survey which is usually conducted once every three years.

In addition, many other studies are conducted according to specific needs, both nationally or for regional use. Surveys of other development projects often include secondary data for population and family planning programmes also.

Reference materials and statistics may be very significant in improving knowledge of the programme but are not sufficient in themselves to change behaviour or stimulate progress. Accordingly, the conclusions derived from these reference materials, including service statistics, studies, reports from other programmes, experiences from the field, and so on, must be put into action through a series of evaluation meetings.

With all of these types of data in hand, the Indonesian Family Planning Programme conducts three types of evaluation meetings, that is, monthly, mid-term and annual evaluation meetings.

The main purpose of the monthly meeting is to discuss the level of ***Input*** being used in the programme, problems in the ***process*** of reaching the goals and the ***results*** or output that has been achieved. This type of meeting is conducted at all levels of the organization.

The mid-term evaluation is conducted every six months at the provincial and national levels. Each provincial meeting is attended by BKKBN chiefs and other relevant implementing units in the province and representatives from the central office. The national meeting is attended by national representatives of all relevant agencies, the chiefs of BKKBN offices from all 27 provinces, personnel from other implementing units and donor agencies. Programme achievements for the last six months are evaluated, discussed and new strategies to overcome shortcomings are specified.

The annual meeting is conducted once every year, and is the most complete evaluation of the programme. This meeting evaluates the performance of each region in achieving the goals set forth at the beginning of the fiscal year, identifies problems and successes, and establishes the basis to plan upcoming programme activities.

As was mentioned earlier, the management of the Indonesian Family Planning Programme has developed in successive stages from a type of management for the people, to management with the people, and finally to a type of management by the people.

Base on this philosophy, all government officials and local leaders at every level have been encouraged to become involved in this national endeavour and many integrated activities with other development sectors have been organized which otherwise would not have been possible.

At lower levels of the organization, relevant personnel engage in lengthy deliberations during numerous cross-sectoral meetings before decisions are taken. Similarly at the top level, the President of the country, himself, has the overall responsibility to ensure adequate coordination and integration of family planning into other national development programmes and activities. The Chairman of BKKBN, who reports directly to the President, coordinates with other ministries, government bodies and private organizations.

The President has received a mandate from the Indonesian people through the National Consultative Body. This body also provides the President with general State Policy Guidelines for development which have been produced and approved by the assembly. To implement these guidelines, the President has the right to choose his ministries and government institutions to assist him. Therefore, in order to strengthen family planning in Indonesia, the BKKBN was created in 1970 by a Presidential decree as a non-governmental body

responsible directly to the President and equipped with branch offices throughout Indonesia.

The Chairman of BKKBN has direct channels for communication and coordination to all BKKBN branch offices in the regions. This arrangement helps facilitate supervision, guidance and the two-way transfer of information, while assisting other implementing units to manage their own family planning programme activities.

As further extension was needed, BKKBN developed a network of family planning field workers, linking grassroots level activities with the BKKBN bureaucracy and the community they served.

Future developments

As a family planning programme matures, it must reach a phase where it becomes a social movement involving the participation of a large number of institutions, government agencies, community organizations and private enterprises, as well as individuals, all of whom become managers of their own family planning activities.

Many institutions, which were formerly the object of development, have turned themselves into actors who manage development activities themselves. Various non-profit institutions, such as the Indonesian Doctors Association and the Indonesian Midwives Association which acted as service implementors in the past, now assist their own members to render services to self-reliant family planning acceptors. Private companies, which were not interested in family planning in the past, have changed their attitude and now help to promote family planning through social marketing programmes.

The challenge of the future will be for family planning managers to keep up with these sophisticated developments. For this reason, the MIS must be able to supply these managers with specifically designed management information which is reliable, useful, timely and relevant. This information should be as concise as possible, but yet readable and easy to apply, since managers at the field level have little time to spend trying to comprehend rough data. This consideration implies that we must consolidate and streamline the management information packages for various categories of managers, while maintaining a system that is fully integrated, standardized, and relevant to the management in all possible circumstances.

As general socio-economic conditions improve and as the small, happy and prosperous family norm becomes institutionalized, the involvement of the commercial sector in the family planning movement is expected to increase, not only in quantitative but also in qualitative terms. The current monitoring system

which gathers data directly from the district and village networks will need to be adjusted.

A new sub-system to monitor and evaluate the positive contributions of the private sector will need to be initiated in order to understand total service coverage. Consequently the total family planning MIS must be further strengthened to include this understanding of the commercial sector involvement in the programme. We have every little experience in collecting information from the fully commercialized (non-subsidized) sector. New ways of incorporating this information will have to be developed. It is very likely that routine monitoring will have to be avoided and we will have to rely on reports from direct research and other survey methodologies.

As technology develops and computers become available throughout Indonesia it is only logical that management information processing and presentation should be decentralized. This is also in line with the motto : management by the people and as close as possible to the clients being served.

Though this approach has been implemented in a gradual manner, its effectiveness will only improve as the family planning bureaucracy in the provinces becomes more experienced and skillful, and as the members of the community themselves become more mature and willing to play an active role in programme management. This shift will require training of local staff in computerized data processing, analytical methods, and management reporting.

By placing data processing units at locations closer to the target information user, it is expected that managers in the field, including those from the commercial sector, will have better access to information needed for decision making. In addition, the closer proximity of management information processing and production units to their respective consumers will make it possible for these units to produce management data that is tailored to the specific needs of the area and will provide a better understanding of the behaviour of their respective consumers. High quality management decisions can thereby be better ensured.

These challenges of the 1990s can only be met if adequate resources are available to cope with an ever increasing demand for data for management purposes. Adequate funding will be needed for additional computer hardware, software, and supplies; and for the production of management information.

D. PAKISTAN

The Population Welfare Programme in Pakistan was formally established in 1965 and has evolved through various phases as a result of different strategies and approaches adopted by the Government. In the initial stages, the

programme was a simple service delivery system. Over the years, it has gradually become quite complex and sophisticated. Along with this development, the information needs for programme management have also evolved from simple recording and reporting in the initial stages to the comparatively more detailed and comprehensive information requirements of today.

As the system expanded, more and more components, mostly in the form of projects, were added to the programme. Accordingly, for each additional component, a recording and reporting system was devised and implemented. Consequently, there arose a complex mix of several individual recording and reporting systems for the various programme components. Since several programme components were implemented through the same administrative or field units, duplications, overlaps and conflicts were inevitable.

In 1986-87, a diagnostic study was conducted to examine and analyze the existing system and design a simplified efficient and viable MIS in the light of the present day needs and requirements of the Population Welfare Programme in Pakistan. Following this study, an integrated and improved MIS has been designed and extensively field tested. It is now poised for implementation. The objectives and nature of the new MIS are outlined below.

Objectives and basic concept of the new MIS

The major objective of the MIS is to provide timely, accurate and complete data on programme performance so as to form the basis for decision making by programme management at the district, provincial and federal levels. The scope of decision making mentioned in this objective is wide and covers the areas of planning, supervision, monitoring and evaluation of the Population Welfare Programme.

The specific objectives highlight the flow of data about programme performance from the grass-root level, through various tiers of administrative control, right up to the level of Population Welfare Division. The MIS ensures data flows about the three major dimensions of the Population Welfare Programme, that is, service performance, contraceptive logistics and programme administration.

Service performance includes all aspects of the quantities and types of contraceptives delivered or sold, segregation of old and new patients, records of demographic background, medical history and contraceptive usage for each client by days and months, recorded and reported for each service delivery unit. This aspect also includes coverage and performance of related services such as maternal and child health care.

Contraceptive logistics include all aspects of requisition, receipts, stock and storage, sales or free delivery, inventory records and periodic summary reporting.

The programme administration component of the MIS is designed to record, accumulate, summarize, and report data regarding staffing position, fixed assets and equipment, supplies and medicines and general use items, and information on budgeting and actual expenditure (from the level of district upwards), in order to ensure proper functioning of service delivery and supporting units and help the managers to make administrative decisions for smooth and effective performance of the Population Welfare Programme.

Several fundamental concepts have guided this design:

- One of the fundamental guiding concepts has been the requirement that the MIS should always meet the demands and needs of programme managers as well as decision makers/data users.
- The District Population Welfare Office acts as a centre for collecting and reporting data on programme performance in the district. This office is the basic unit for service delivery and programme impact measurement.
- The system design has been guided by the concept that data collection and reporting should be as simplified as possible without sacrificing vital information.
- Adequate, simple and well understood recording and reporting instruments are essential for an efficient MIS. Accordingly the system uses recording and reporting instruments in the most simple form that are practically possible.
- The design of the MIS is based on the following simple chain of successive operational steps:
  - Recording
  - Reporting
  - Tabulation, aggregation and processing
  - Presentation and feedback
  - Analysis and interpretation
  - Utilization for decision making
- The MIS identifies several types of recording and reporting instruments including registers, identification cards, record cards, reporting forms and displays.

Structure

The MIS is a recording and reporting system in terms of its structure, but involves management decision-making components at all levels. This combination is an attempt to transform the information system from a purely recording and reporting system towards a sophisticated management information and decision support system.

The MIS is designed around the following five major activities as follows:

1. Service delivery
2. Contraceptive logistics
3. Programme administration
4. Non-service delivery components
5. Overall programme performance

Accordingly the system consists of four main subsystems and a national reporting system at the federal level. The four basic subsystems have not been designed in isolation but have been established with proper linkages at various levels so that they are fully integrated. Each subsystem ensures recording of critical data for purposes of programme management at various levels and provides for the flow of compact but comprehensive reports from the grass-root level units, through the various tiers, up to the Population Welfare Division. The system also ensures proper feedback of critical data required for management purposes at all levels. The relationship and linkages between these subsystems are shown in figure 2.2.

Since the subsystems have been well integrated, the recording and reporting activities do not take place separately. Properly integrated records are maintained and similarly integrated reports move from lower to higher levels. The information flow in terms of reports for the entire Population Welfare Programme is shown in the flow chart depicted in figure 2.3. It may be noted that various field units under provincial control directly report to the District Population Welfare Office (DPWO) where the reports are analysed and aggregated. Desk monitoring is also done at this level. The DPWO then reports directly to the provinces on the programme activities in the district concerned. The Provincial Line Departments (PLD) deliver contraceptives through their own outlets and report directly to the Provincial Population Welfare Departments. The reports flowing from various districts and PLDs to the Provincial Population Welfare Department are further analysed and monitored. At the provincial level, a further aggregation of reported data takes place. The aggregated results and desk monitoring reports then move from the provincial to the federal level.

Figure 2.2. Relationship between subsystems of MIS

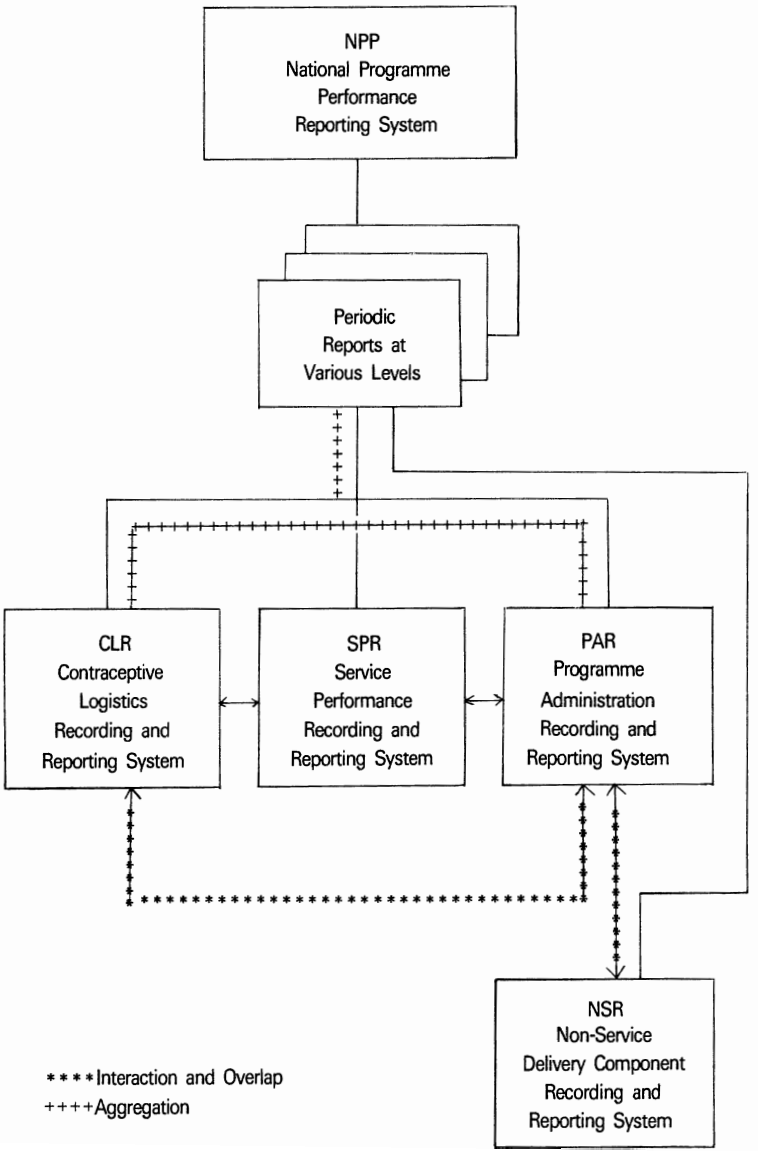
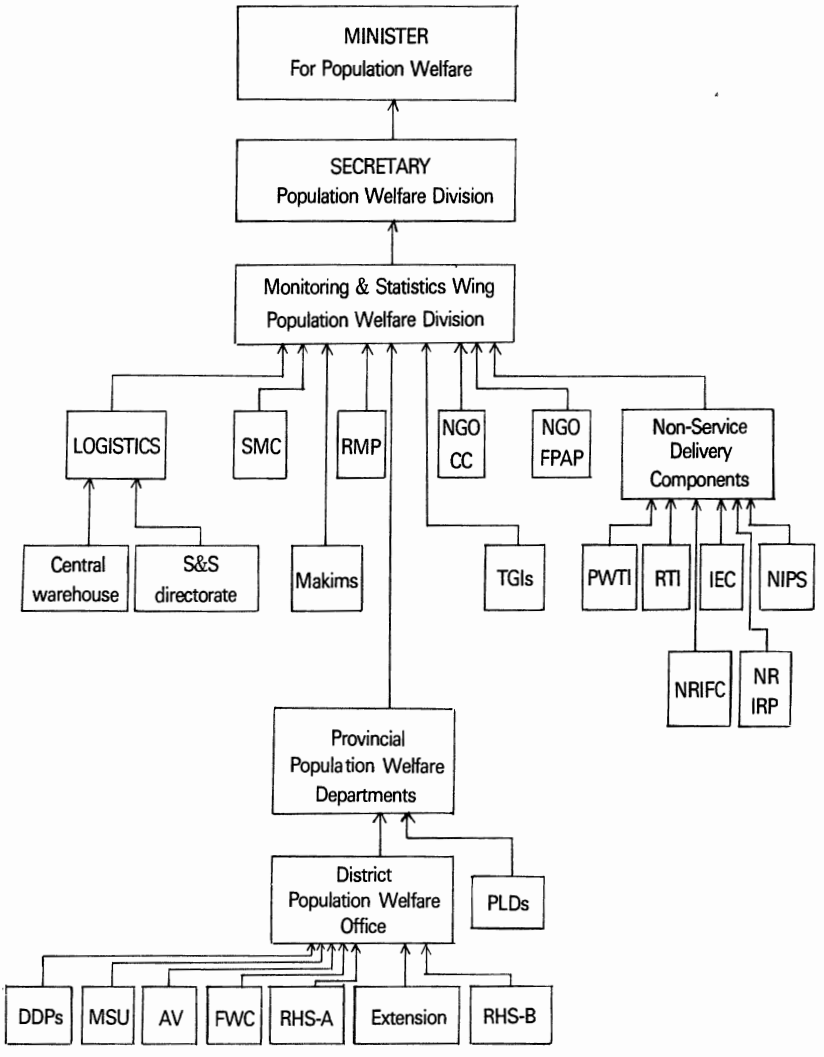


Figure 2.3. Flow of performance reports in the population welfare programme



Note : See note 1 below figure 2.4 for explanation of abbreviations.

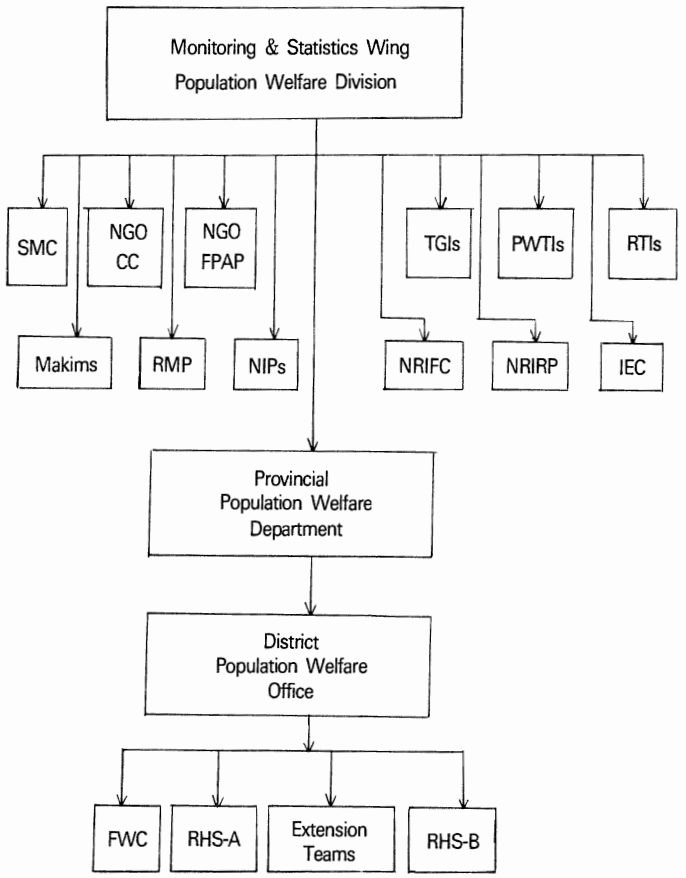
Some field units are retained under federal control, such as NGOs, Hakims, Target group institutions and the social marketing project. The new service delivery project for Registered Medical Practitioners (RPM) will be launched in near future and will also be under the federal control. All these units report directly to the Population Welfare Division.

Some aspects of contraceptive logistics including purchasing, acquisition and warehousing at the central warehouse, are under federal control. The units responsible for these functions also report directly to the Population Welfare Division.

Several non-service delivery components are an essential part of the Population Welfare Programme. These include Population Welfare Training Institute, Regional Training Institute, Information, Education and Communication Project, National Institute of Population Studies, National Research Institute of Fertility Control and National Research Institute of Reproductive Physiology. For management purposes the activities of these institutions must also be monitored and analysed. For this purpose these institutes will also provide periodic report to the Population Welfare Division. Presently the MIS includes simple reporting procedures for a limited number of parameters for these non-service delivery components. However, in future when the MIS attains a greater degree of sophistication, the information system for these components will also have to be strengthened and developed further so as to assess the impact of their activities on programme accomplishments. Since the major purpose of the MIS is to help decision makers in managing the affairs of the programme, it is essential that accurate, valid and timely feedback be provided to managers and decision makers at all levels including the grass-root level field units. For this reason the MIS emphasizes appropriate feedback at all levels. The flow chart in figure 2.4 shows the various feedback reports. At the field unit and district level, these are primarily designed to help the unit heads to assess their performance in relation to other similar units and take corrective action accordingly. At the higher levels, the feedback is in the form of critical analysis, both quantitative and qualitative and is designed to help the decision makers better manage the respective programme components.

One major constraint of the new system, however, is that it has tried to simplify and streamline the existing system by reducing the number of forms and removing duplications. It fails though to address the major new programme thrust of integration of family planning and health services. Also it still remains a mechanical system and therefore is not easy to computerize. These are among the reasons for delays in its national implementation.

Figure 2.4. Flow of feedback reports in the population welfare programme



Note : See note 1 for explanation of abbreviations.

Figure 2.4. (continued)

Note 1. Explanation of abbreviations used in figures

SMC	Social Marketing Company
RMP	Registered Medical Practitioner
NGO-CC	Non-government Organizations concerned with Conventional Contraceptives
NGO-FPAP	Family Planning Association of Pakistan
S&S Directorate	Service and Supplies Directorate
TGI	Target Group Institution
PWTI	Population Welfare Training Institute
RTI	Regional Training Institutes
IEC	Information, Education and Communication project
NIPS	National Institute of Population Studies
NRIFC	National Research Institute of Fertility Control
NRIRP	National Research Institute of Reproductive Physiology
PLD	Provincial Line Departments
DDP	District Distribution Points
MSU	Mobile Service Unit
AV	Audio-visual
FWC	Family Welfare Centre
RHS	Reproductive Health Services

E. REPUBLIC OF KOREA

Background

It is widely recognized that the national family planning programme in the Republic of Korea evolved primarily in response to the high population growth in the late 1950s and it has been carried out since 1962 as an integral part of a series of Five- Year Economic Development Plans. The driving force of the programme has been the utilization of a large corps of family planning workers to motivate clients through home visits, and private physicians to provide contraceptive services free of charge. Its success is largely attributed to an efficient programme management with emphasis on the contraceptive target allocation and programme monitoring through a routine service statistics system with a broader management information system.

From the Fourth Five-Year Economic Development Plan (1977-81), the government began to stress the expansion and intensification of health and medical programmes, including MCH and medical insurances. Therefore, in 1982 the government started to merge three different cadres of field workers (FP, MCH and TB), placed in the health centres and sub-centres, into multi-purpose health personnel performing integrated health activities. In spite of this government action, and the similarity of FP and MCH programmes in their contents and target population, the national FP programme is still independently planned, implemented and monitored without a close co-ordination with MCH and other health programmes.

In response to recent changes in socio-economic and demographic conditions, however, it is highly desirable that the past fertility reduction oriented approach of the national FP programme should evolve into a qualitative and welfare oriented one. It is, therefore, timely and desirable that the service statistics and monitoring systems covering FP/MCH programmes should be redesigned. The purpose of this paper is to review the current FP and MCH programme monitoring systems in the Republic of Korea in order to foster a sound base on which an integrated programme could be effectively implemented.

Service statistics systems

The overall responsibility for the implementation of the FP/MCH programmes has been delegated to the Ministry of Health and Social Affairs (MOHSA), which has established a Family Health Division consisting of the FP Section and MCH Section under its Bureau of Public Health. Actual implementation of the FP/MCH programmes is done at the provincial level, where the Bureaus of Health and Social Affairs typically contain a Family Health Section, responsible for the implementation of FP/MCH programmes. At the city and county level, health functions including FP/MCH are placed in the health centre, in

which there is a Family Health Section covering FP/MCH programmes. The health centre director controls directly the network of health sub-centres at the town/township level where these are usually two or three health workers.

Once the annual numerical targets for FP/MCH programmes are set at the national level by MOHSA with technical support of the Korea Institute for Health and Social Affairs (KIHASA), they are apportioned among the provinces and cities: at the provincial level the quotas are divided among the county and urban districts so that each health centre receives its own quotas for FP/MCH services; at the health centre level the quotas are allocated to the individual health workers at the grass-root level. The primary criterion used in the allocation of targets is the number of married women, aged 15 to 44, although at the county level targets are adjusted somewhat to reflect the previous year's performance.

The service statistics system for FP/MCH programmes contains three types of instruments: records, contraceptive acceptors' coupons, and reports. It consists of twenty officially- designated record and reporting forms and a large number of unofficial record forms developed by local programme managers.

The official record forms are kept for local administrative and managerial purposes. Their functions are: 1) to help field workers plan their daily activities; 2) to help supervisory personnel review in detail field workers' activities; 3) to record and store data that are subsequently transferred to monthly reports; and 4) to facilitate acceptor management.

In addition, a number of unofficial record forms have been designed by provincial and local programme managers to augment the official records, which focus exclusively on acceptors. These unofficial forms range from evaluation check lists to lists of the eligible population in a given area. The greatest number, however, are concerned with monitoring the daily activities of field workers. Reports, unlike records, flow upward from level to level. The two main reports are the acceptor's coupon and the monthly progress report.

The family planning coupons, sent directly to KIHASA each month by the health centre, serve to: 1) measure progress in meeting clinical acceptor targets classified by method; 2) provide KIHASA with information on the demographic characteristics of acceptors; 3) serve as the service provider's bill to the health centre for contraceptive services rendered; and 4) use for the acceptors' follow-up surveys including data quality check.

The FP coupon is issued to acceptors by a wide variety of health personnel involved in family planning. The coupon has two parts, A and B. Both are partially filled in by the issuer. Part A is sent to the health centre and Part B is given to the acceptor for presentation to the service provider who completes the coupon and sends it to the health centre for payment. Then, the health centre

pays the provider, matches the coupon halves, fills part B and mails part A to KIHASA once a month after tabulating the achievement of the issuers. KIHASA uses the coupon data for such purposes as national or regional target setting and computer simulations of the effects of the national programme on overall fertility. A complete tabulation of the coupons has been done quarterly since 1970 to obtain information on the changing composition and characteristics of FP acceptors.

Monthly family health progress reports (FP and MCH) are prepared by township health sub-centres, county health centres and provincial units, and are submitted to MOHSA.

The purposes of the reports are to: 1) inform higher levels of the progress made in achieving assigned acceptor targets; 2) inventory contraceptive supplies for logistics management and to report service fees collected for pills and condoms; 3) report personnel levels and vacancies; 4) keep track of the number of designated physicians active in each township, county, and province; and 5) monitor the movement and qualifications of national programme staff. The township, county and provincial progress reports use essentially the same form. The county report is, with only a few additions, an aggregate of the county data, so the performance of individual service delivery points, such as clinics and township field workers, is known only at the county level. That is, the province receives county-level data only and MOHSA receives provincial level data only. Figure 2.5 shows the monthly reporting systems of the core agencies of the Family Health programme: MOHSA, KIHASA, province, county, and township components.

The contents of the monthly progress report cover two major areas, family planning (pages 1 to 2) and maternal and child health (pages 3 to 4). The data obtained from the monthly reports are shown in annex 2.1.

The present monthly reports are fairly simple and provide up-to-date effectiveness indicators in the form of target/achievement information. The service statistics system seems to handle logistics well, and the upward step by step flow of reports is a necessary prerequisite for management decision making and supervision. On the other hand, there are a few of weaknesses in the system that need to be corrected. The quality of services cannot be monitored routinely. Also, we have still some controversies on the reliability of the monthly MCH service statistics report prepared by the town and township health workers. However, the quality of FP reporting information seems to be good since all clinical contraceptive services are provided by private physicians and the acceptor's coupon is confirmed by physician, health centre director, and acceptor.

Another weakness of the reporting system is that the report does not provide any information regarding the general situation of coverage of FP/MCH services in the area. Admittedly, prevalence data on FP and MCH are more different to obtain than recruitment data. However, if FP or MCH management records of the health worker are well kept, such data should not be difficult to obtain.

Figure 2.5. The family health programme reporting system : reporting agencies, reports prepared and reporting flows

Programme agencies	Reports prepared	Number of copies prepared	Number of copies submitted	Sub-mitted to	Date of sub-mission
Township HSCs MCH Centers PPFk Clinics	FH Program Status Report (page 1 to 4)	2	1	HC	1st day of the following month
Health Centres	-	2	1 [a]	Prov. Govt.	5th day of the
	Acceptors' Coupons	2	1(A)	KIHASA	following month
City and Provincial Governments	FH Program Status Report (Page 1 to 4)	2	1 [b]	MOHSA (KIHASA)	The 10th day of the following month

[a] Attached each individual reports
[b] Attached health centre reports

Programme monitoring and feedback systems

Programme monitoring functions, based on service statistics, have been conducted independently by the Population Research Division and Health Research Division, KIHASA. Several evaluative indicators have been utilized. The

evaluation index is composed of four components with the following weights: 60 per cent for target/achievement by method; 15 per cent for exceeding achievements of IUD and sterilization; 20 per cent for the proportion of sterilization and IUD acceptors with two children or less; and 5 per cent for management reporting and accuracy. These reports make it possible for provincial and health centre managers to compare the performance of: (1) their province with other provinces; (2) health centres in their province with each other; (3) health centres in their province with others in the same stratum; and (4) current provincial and health centre performance.

So far, the monthly feedback information system has been very useful and effective for motivating younger acceptors with two children or less and to achieve more than their targets. As shown in table 2, the proportion of total sterilization and IUD acceptors with two or fewer children has increased from 53.6 per cent in 1982 to 94.8 per cent in 1988. Similarly, the mean age of female contraceptive acceptors for sterilization and IUD services through the government programme fell steadily from 31.1 to 28.6 (27.6 for IUD and 29.7 for sterilization) and the mean number of living children went down from 2.7 to 1.7 (1.5 for IUD and 1.9 for sterilization) during the same period.

Similar monitoring and feedback mechanisms for the MCH programme have been exercised by the Health Research Division, KIHASA. The evaluation index is quickly produced, according to the pre-determined scheme, and the results are provided on a quarterly basis to the provincial and health centre levels. The evaluation index for MCH is composed of four components: 30 per cent for the target/achievement of new registrations; 42 per cent for the target/achievement of MCH service care; 20 per cent for the results of spot checks on service statistics maintenance of MCH classroom, and recruitment of MCH workers; and 8 per cent for the report of the maternal and infant death events and its accuracy.

As mentioned earlier, one of the serious difficulties in the MCH programme monitoring system is the problem of the accuracy of the service statistics data that are recorded. There is no evidence of widespread over or false reporting; at the same time little checking is done to ensure that the records are accurate, and in some areas there are inconsistencies between the basic records and the monthly reports. It is believed that this problem has been caused by the inflexible programme target system and low quality of health personnel who are in charge of MCH services. However, the current system could do a better job of motivating people, at all levels, to perform well.

Although the routine programme monitoring functions for FP and MCH are implemented independently, the annual evaluation of both programmes are combined by weighting 70 per cent of the FP evaluation results and the remaining 30 per cent from the MCH programme. Based on the annual programme

evaluation results, special awards including medals and presidential citations have been awarded to outstanding provinces and programme personnel.

Table 2.1. Changes in proportion of contraceptive acceptors with two or fewer children of the total sterilization and IUD acceptors under the government programme

Year	Sterilization		IUD		Total	
	Acceptors[a] (000)	Proportion[b] (%)	Acceptors[a] (000)	Proportion[b] (%)	Acceptor[a] (000)	Proportions[b] (%)
1982	286.7	48.1	199.0	61.6	485.7	53.6
1983	427.0	57.5	213.1	68.9	640.1	61.3
1984	378.8	78.5	195.4	80.5	574.2	79.2
1985	327.7	85.6	176.9	89.4	504.6	87.0
1986	312.5	87.1	233.4	92.1	545.9	89.3
1987	294.9	87.2	242.5	94.5	537.4	90.5
1988	236.7	87.8	251.9	94.8	488.6	94.8

Source: KIHASA, Contraceptive Acceptors' Coupon data

Note: [a] Total number of acceptors through the government programme.
[b] Proportion of sterilization and IUD acceptors with two or few children.

Routine monthly evaluation activities have been enforced in provincial and health centre levels as well; they commonly use the same evaluation index that is adopted at the central level. The results of the monthly evaluation at the provincial and health centre levels are disseminated through official letters. At the health centre level, monthly meetings of family planning workers are held regularly for the purposes of feedback of programme evaluation results and supervision.

The reporting and monitoring system has been a useful tool for field supervisory personnel, in their job of selecting supervision areas and guiding field staff. The forms of observation in supervisory visits fall into four groups: reasons for poor programme performance, management of record keeping, field worker activities, and management of that target population including contraceptive acceptors.

Periodical programme evaluation activities

The routine service statistics system has provided valuable information for work planning, monitoring, evaluation, and supervision of the programme. However, it has many limitations in assessing the quality of programmes, in identifying strengths and weaknesses of the programmes, and in relating findings to the programme objectives. Nor can it point the way to programme modification or improvement. Accordingly, the programme planning and policy making in the past came to rely heavily on sample surveys rather than on the service statistics.

Data for the use of programme planning and evaluation are available from censuses and numerous demographic and family health surveys. Several agencies have been responsible for basic population data. The Bureau of Statistics of the Economic Planning Board (BOS/EPB) conducts the census and handles the data processing of vital registration statistics. KIHASA has conducted fertility and family health surveys at regular intervals since 1964 and it compiles, tabulates and publishes family health (FP/MCH) service statistics.

In the 1960s and 1970s, numerous attempts to improve reporting of births and deaths were made. The basic problems with the registration system were attributed to the delayed registration of births and under-registration of births and deaths. In recent years, reporting of vital events has been considerably improved and dual-system estimates have produced timely and reliable data. Based on the 1987 vital statistics, the BOS/EPB officially announced recent trends in vital rates and new population projections for the period of 1985 through 2020.

Conclusions and opportunities for improvement

One of the outstanding characteristics of the Korean FP/MCH programmes has been the important role of targets and evaluation systems based on the routine service statistics. In other words, the quantitative approach has been applied extensively to the management of the programmes at all levels. The target system has served as a particularly useful guide for evaluating programme performance in aggregate terms and for increasing contraceptive acceptance and enhancing the MCH services through a strong pressure that is applied at all levels in the government structure to meet the targets.

Considering the current socio-economic developments and changes in fertility and contraceptive behaviour in the Republic of Korea, however, the independent management of the FP programme seems no longer adequate for increasing programme quality. In spite of the high contraceptive practice rate, there have been numerous problems in contraceptive acceptance and use effectiveness. More than 90 per cent of contraceptive users resort to family planning to terminate fertility, but the contraceptive discontinuation rate is rather

high. As a consequence the induced abortion rate among young women is still high. These unfavourable effects stem from the fact that FP services in the Republic of Korea have been developed purely as means of fertility reduction, disregarding the importance of FP to MCH. An integrated FP/MCH programme is the obvious remedy.

Although the government took action to merge the three types of health workers (FP, MCH, and TB) into multi-purpose health workers in 1982, there has been no real integration. To ensure the success of integration, organizational and functional integration within public health programmes must be accomplished. Accordingly, the integration effort should be directed towards: 1) unifying the existing health programme network; 2) re- establishing the role and function of health workers under the integration scheme; 3) developing a unified record and reporting system; 4) improving the health workers' quality through retraining programmes; and 5) establishing a single programme management system. Since the design of the integration scheme is not easy, special assistance will be needed for planning, evaluating, and supervising the integrated FP/MCH programme and for training personnel.

One of the problems in the service statistics system in Korea is the quality of the basic records found at the local level. Much of the data about each acceptor is unreliable, and little attempt is made to delete from the records those who have dropped out of the programme. Even more difficult is the problem of the accuracy of the data and over-reporting.

Since these problems may be partially attributed to the inflexible target system, the current management system, including the target system, should be amended to as to enhance quality of services and of data. In addition, more effort should be given to make the records and reports a more useful tool for supervisory personnel for monitoring and guiding the field staff.

Finally, the existing service statistics reporting system, which covers only public sector programmes, should be extended to the private sector, since the activities of self-supporting private FP/MCH services will increase sharply, in response to the new medical insurance system that covers the entire population from 1989. In addition, the absence of vital registration statistics which could be used for the planning of FP/MCH programmes represents a severe stumbling block to the efficient evaluation of the programmes. A major effort is needed to improve the current vital registration system, in close connection with national medical insurance scheme.

F. CONCLUSION

It is apparent from the preceding sections that all five countries have long standing commitments to support of family planning and have evolved comprehensive information systems to support management decision-making. Yet none of the participants are complacent about past achievements. Rather, they all identify fundamental challenges and suggest ways in which these might be met.

In some countries, radical changes have already been made. Bangladesh, for instance, has introduced recently a system for continuous monitoring of contraceptive and immunization coverage. Pakistan has devised an entirely new MIS, that has been extensively pre-tested.

The main challenge in the Republic of Korea is to devise an information system that will meet the new demands of an integrated family planning and MCH service. This concern is shared by India, where the limited ability of the current MIS to assess the impact of MCH activities is recognized. In Indonesia, adaptation of the MIS to handle the growing involvement of the private sector and the increasing desirability of decentralization is seem as the main priority in the years ahead.

The five country papers thus have illustrated many of the problems and issues of MISs in the 1990s. Some of these issues are discussed at greater length in subsequent chapters. However, one conclusion may already be drawn. The MISs of Asian and Pacific family planning and MCH programme are not static, but are responding rigorously to changing situations.

Annex 2.1.

Data available for monthly reports

Data on FP programme

1. Medical manpower for clinical contraceptive services
   - o Number of FP designated hospitals/clinics by method
   - o Number of hospitals for side effect treatments

2. Registration
   - o Total number of registrations
   - o Number of new registrations and drop-outs

3. Incentives for sterilization acceptors with two or less children
   - o Number of monetary incentive acceptors by parity among the low-income sterilization acceptors
   - o Number of free medical service acceptors among children aged 0 to 6 of sterilization acceptors
   - o Number of deliveries free of charge
   - o Total expenditure for free medical services

4. Contraceptive achievements
   - o Vasectomy by parity
   - o Tubectomy by parity
   - o IUD by parity and type (Lippes, CuT, etc.)
   - o Amount of supplies (condom and oral pill) distributed
   - o Inventories of supplies

Data on MCH programme

5. Registration
   - o Number of new pregnant women by gestation period and drop-outs
   - o Number of new infants and children by age and drop-outs

6. Services
   - o Number of pre-natal services by direct care/referrals
   - o Number of infant/child treatments by age

7. Delivery aids
   - o Number of institutional deliveries
   - o Number of home deliveries
   - o Number of referral cases

8. Education
   - o Number of sessions and participants

9. Vaccination for infant/child
   - o Diphtheria/Pertussis/Tetanus (DPT)
     - Number of acceptors by basic and booster
     - Inventories (ml)
   - o Poliomyelitis
     - Number of acceptors by basic and booster
     - Inventories (dose)
   - o Diphtheria/Tetanus (DT)
     - Inventories (ml)
   - o Measles/Mumps/Rubella (MMR)
     - Inventories (dose)

10. Health examination
    - o Number of high-risk women by normal/abnormal cases
      - Number of abnormal cases: Toxemia/Hypertension/ Proteinuria/Eldema/Hepatitis/Anemia/Ectopic regnancy/Infection/Syphilis & Gon, etc.
    - o Number of infants and children by normal/abnormal case and age
      - Number of abnormal cases by symptom
    - o Number of persons received the second health examination and the results

Chapter 3

POPULATION MANAGEMENT INFORMATION SYSTEMS IN THE 1990s: EVOLUTION, REVOLUTION, OR RECYCLING?

by James Palmore and Joung-Im Kim Palmore

INTRODUCTION

The 1990s will be exceptionally challenging for those involved in designing and using population management information systems. The changes in what we need to know are profound, the development of new concepts and statistical methods swift, and the demand for concurrent assessment increasingly hard. To face these challenges, a revolution in management information system methodologies should occur, but it will be tempting for many programmes to take the easier course of modest evolution or even to recycle old methods.

We should realize that programmes are changing and, hence, the ***management*** issues are different, the ***information*** wanted is no longer the same, and the best management information ***systems*** are not going to be the ones of the past.

Four major topics illustrate the new needs: (1) the increasing realization that equal access to national programmes is desirable; (2) privatization; (3) the integration of family planning with other programmes, such as maternal and child health; and (4) the growing complexity of analysis techniques available for use.

A. REDUCING INEQUALITIES

In implementing national programmes, managers are increasingly aware of diversity of needs. From the manager's point of view, there is not one India but many Indias, not one but many Thailands, not one but many Indonesias. In fact, Indonesia has now made "equality" one of its major goals. By this is meant equal cognitive, affective, geographic, and economic accessibility (Palmore and others 1987; Jones 1989), equal quality of service, and related ideas (see, for example, Palmore et al. 1990).

This recognition of diversity has clear implications for management information systems: they must be able to provide local area facts and have local area staff capable of analyzing and interpreting these facts. Fortunately, the fast

expanding use of personal computers and appropriate software makes such localization feasible. Less fortunately, localization implies the need for training many more staff to collect, analyze, and interpret data at subnational levels. Further, localization will require an increase in resources allocated to monitoring and evaluation, both at the local level and at the national level where greater effort will be required to coordinate the aggregation of information.

Besides making information common to the whole programme available to local areas, what is required is flexibility in acquiring, through management information systems, locally specific information for each area. ESCAP's earlier work on measuring the impact and efficiency of family planning programmes (e.g., ESCAP 1988) and various communication needs assessments in India (e.g., Palmore 1983 and Palmore, Thomas Mathai, and Yadav 1985a, 1985b) illustrate attempts to answer such questions as:

(1) What local historical, political, religious, logistic, socio-economic, and administrative factors are affecting the programme? How is each local area different in terms of the factors affecting programme performance?

(2) In a particular local area, what affects the relative priority of family planning and maternal and child health programmes as compared to other development programmes operating in that area?

Specifically, the ESCAP project tried to identify local areas where the family planning programme was either unusually efficient or unusually inefficient. In depth case studies were then undertaken in those areas to determine what accounted for relative efficiency or inefficiency. In the India studies, information was collected for topics summarized by the acronym KAPCARSI: local area information on Knowledge, Attitudes, Practices, Channels available for communication, Accessibility, Rumours about health and family welfare, Socio-economic and demographic characteristics of people in the area, and Identifying health and family welfare problems as perceived by people living in each local area. The ESCAP and India studies, unfortunately, are the exception rather than the rule. While information specific for local areas is often essential, it is only rarely collected or analyzed.

We need to know what phenomena help account for observed inequalities. Management information systems do not address these issues well at present: they should address these issues better in the future.

B. PRIVATIZATION

Another regional trend is towards the greater involvement of non-governmental organizations and the commercial sector in family planning and maternal and child health programmes. The involvement of the private sector in family planning programmes is not new, of course. In fact, the initial programmes in many Asian and Pacific countries were solely private and the government programmes started later. Typically, however, the private sector programmes in the early days were relatively small. Malaysia and Singapore provide examples. What is new is the scope of the current and anticipated involvement of the private sector. In many countries, a very large private sector involvement is envisioned.

This trend towards privatization, too, should alter management information systems. Nepal, for one, has already faced the difficulties inherent in trying to obtain comparable information from different agencies. The Republic of Korea now has long standing experience and is very aware of how difficult it is to monitor programmes outside of the government sphere.

What characteristics of privatization are most likely to demand new types of management information? Eleven inter-related sets of questions illustrate emerging management information needs:

(1) What contraceptive methods can be effectively promoted and sold in the private sector? In other words, what can be successfully marketed in a system driven by market forces?

(2) How will prices be determined purely by market forces and the profit motive or with subsidies? A related question is what to do about fees for services, not just the prices of the contraceptive methods themselves.

(3) How can the private and public sectors cooperate instead of compete? How will the coordination between the two sectors be monitored and evaluated?

(4) What should be the relative mix of public and private sector activities? Who can most successfully motivate? Provide a good contraceptive mix? Provide the highest quality service? Monitor and evaluate the inputs, processes, and outputs for the programmes?

(5) Public and private are two ends of a continuum. To what degree should the private sector become involved in public policies? To what degree should the public sector overlap with private sector activities? To what degree should the public sector oversee private sector activities? How "private" should the private sector be?

(6) What marketing research should be included in the management information systems? Who should do this research?

(7) What are the relative costs to the society of public vs. private programmes? What are the major factors determining the relative costs?

(8) What ethical issues are involved and how can we insure, through monitoring and evaluation, that the public good is ensured? For example, suppose that the same product is marketed by both the public and private sectors but has different packaging and prices. Can the provider with the higher priced, better packaged method claim it is a superior product? Or suppose that public sector employees serve in the private sector programme in their free time. Which agency will claim their loyalty? Will the public sector services suffer?

(9) What are the relative opportunity costs for prospective clientele in public vs. private programmes?

(10) How can incentives and disincentives be geared to the additional programme strategies necessitated by greater involvement of the private sector?

(11) How can a public sector management information system assist in aiding success in the private sector without morale problems among public sector employees? A related issue is the degree to which the government programme will allow private success.

These questions exemplify issues that will demand new, always malleable, management information systems in the 1990s as privatization happens. Clearly, current service statistics, surveys, and other management information system data collection efforts are not adequately covering such issues. Small innovations in the current systems will not suffice.

C. INTEGRATION

Family planning programmes have also been merging with other programmes for social welfare. The integration of family planning and maternal and child health provides the major example, but other integrative strategies have also been followed (see International Planned Parenthood Federation and Deutsche Gesellschaft fur Technische Zussamenarbeit 1989).

Integration is a much overused word, and most of us are not sure how the reality of integration is defined. The levels at which integration occurs, for instance, are not always clear. Is integration a policy at the national level or, instead, an everyday series of practical events in work at the lowest implementation levels?

It is apparent that linking maternal and child health (or any other programmes) to family planning programmes will complicate management information systems. There are, simply, more facts we need to know, because we are assessing the inputs, processes, and outputs of more than one social intervention. Further, the levels at which the various programmes are integrated affect what needs to be known as well as who needs to know it. If integration is at the lowest levels, then the field workers need new types of information. If integration is at the policy level alone, policy makers need new types of information. Management information systems for the 1990s should be unusually responsive.

Integration also suggests that personnel matters need closer inspection than before, since personnel from previously separate agencies may have different salaries, different supervisors, different goals (even after retraining), and different knowledge and skills to apply to the tasks at hand. These considerations are discussed in greater detail in other chapters.

Some of the new issues raised by integration overlap with those raised by privatization. Two examples are:

(1) How can the integrated programmes cooperate instead of compete? How will the coordination between previously separate programmes be monitored and evaluated?

(2) What are the relative costs to society of integrated versus non -integrated programmes? What are the major factors determining the relative costs?

Proper inter-sectoral linkages between the family planning programme and the programme(s) with which it integrates should be developed. Networking mechanisms for management itself, the information generated by management, the information needed by management, and the management information systems between the previously separate, now integrated, programmes deserve careful scrutiny and strengthening (Kim 1983).

D. ANALYTIC COMPLEXITY

A fourth reason for altered needs in management information systems is the dramatic rise in sophisticated analysis techniques. These techniques are more and more difficult to learn, apply intelligently, and interpret so that programme managers can use the results. Further, some of the newest questions we are asking (such as those listed in the section on privatization above) will lead to even newer methods.

To illustrate this last point, increasing managerial concern with service quality should lead to sample survey and service statistics questions never before asked in many countries. Furthermore, "quality" is far more difficult to measure than quantity, and what social scientists call qualitative research may have to be added to the management information systems' repertoire of research techniques. As family planning programme objectives are reformulated by incorporating integrated programmes to move towards improving family health and welfare in a broader sense, more qualitative information is needed and more complex measures are inevitable.

Enumerating all of the latest techniques useful in monitoring and evaluating programme progress or in developing strategies is a tedious task unsuitable for the present volume. A few significant development however, should be mentioned:

(1) There is an increasing emphasis on which contraceptive methods are chosen instead of concern with whether or not any contraceptive is used (Bulatao, Palmore, and Ward 1989). The most appropriate methodology here is multinomial logit regression, a technique few programmes are now equipped to use.

(2) There is more sophistication in using areal data from programme service statistics and integrating this data with individual level data from surveys. Multi-level analysis is now more feasible (Entwisle, Mason, and Hermalin 1986), but as with (1) above, the statistical methods are complex.

(3) The importance of social networks for health and family planning behaviour is now widely recognized, the analytic techniques improved, and measurement ideas are becoming better known (Rogers and Kincaid 1981; Kim and Palmore 1984; Kim 1986). New data collection and analytic methods need to be learned by programme monitoring and evaluation units to obtain useful results.

(4) Parity progression methods (Feeney and Yu 1987; Feeney 1988) and the analysis of birth interval data (Rindfuss, Palmore, and Bumpass 1987) has been transformed in the last two decades. Potentially valuable information for programme managers can be obtained from this type of work, but hazards models, logit regression of birth interval segments, and the other statistical models used are complex.

(5) New uses of old concepts are coming into play. Latent unmet need is one example (Palmore and others 1990). Self-reliance is another (Suyono and Matheus 1990). Each new usage requires new monitoring and evaluation activities.

It is important to maintain a problem orientation. What are the problems we want our management information systems to solve? What indicators, statistical methods, and data are appropriate? We are fortunate that there has been so much progress in developing suitable methods, but we are unlucky because the new methods require more training, more computer software, and the like.

As stated at the outset, what is meant by ***management***, ***information***, and ***systems*** are all being modified very quickly: this is what calls for the revolution. The four illustrative topics all have implications for management, information, and appropriate management information systems (see figure 3.1.).

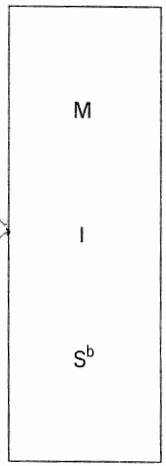
E. MANAGEMENT

As the scope, objectives, and strategies of family planning programmes change, management has to change (Kim 1988). Shifts from family planning and fertility concerns to broader awareness of family health and welfare, shifts from public sector monitoring to diagnosing both public and private sector problems, and shifts in programme emphasis from expansion, to maintenance, to institutionalization and, ultimately, to self-reliance force changes in the nature of programme management. The issues facing management are far from static: management information systems must adjust. The levels of management involved in decision- making will also have to change, and the locus of decision-making defines the ultimate users of management information system results.

A recent paper by Simmons and Phillips (1990) suggests that a modification from rational, scientific management to an open- systems theory approach (Scott 1981; Pfeffer and Salancik 1978) may facilitate communication between the programme and programme clientele. These client transactions, Simmons and Phillips argue, provides important "proximate operational determinants" of fertility and family planning behaviour. In their view,

Figure 3.1. Changes in family planning and maternal and child health programmes which affect both management and information and, hence, management information systems (MIS)

	Management	Information
REDUCING INEQUALITIES	decentralized but centrally coordinated	localized information processing[a] to improve its appropriateness, relevance, and timeliness
PRIVATIZATION	public and private sector coordination	new questions, more data sources, more users, and more complex analyses needed
INTEGRATION	coordination of more than one programme and more attention to personnel matters	
ANALYTIC COMPLEXITY	need for more highly trained monitoring and evaluation personnel and changes in information management[a]	



Notes : [a] Changes in who collects, analyzes, interprets, and uses the data.

[b] Management information systems, including the addition of qualitative research.

communication between the programme and programme clientele is the programmatic, managerial analogue of the more familiar "intermediate variables" (Davis and Blake 1956) or "proximate determinants" (Bongaarts 1978) affecting fertility, and communication is likely to be affected by alternative management styles (Peters 1987).

It is vital to recognize that family planning and maternal and child health programmes are dependent on many resources outside these programmes. Further, these programmes operate in conditioning socio-economic, cultural, political, and administrative contexts that are not all under the control of family planning programme managers. Without improving current management information systems, decision-making processes may come to resemble a "garbage can model" (Cohen, March, and Olsen 1972; March and Olsen 1976) more often than the neat, hierarchical, "rational model" of organizational decision-making that often served as the model in the past.

"Rational" models assume (March and Olsen 1976) that:

(1) all the alternatives are known;

(2) all the consequences for each alternative are known;

(3) preferences among the alternatives and consequences are well defined; and

(4) the decision-making rules are also well defined.

Surely these assumptions are no longer valid for population programme management. In fact, they never were.

With integration and privatization, there will be more agencies, organizations, and programme personnel. For any of the four illustrative topics described earlier, there will be more issues and problems to deal with and more solutions to look for. Without improving present management information systems, more and more problems and possible solutions will be generated and "piled up" just like garbage piles up in a garbage can. This can result in an overload of unorganized information or a scarcity of the information really needed. An efficient management information system can organize the garbage can (Kim 1983).

Consider a garbage can. Some people (or organizations) may throw in "solutions". In the garbage can, the "problems" may be looking for their "solutions" and the "solutions" may be looking for their "problems" in a totally disorganized way. How can management information systems help? People are looking for solutions to their problems. Or, sometimes, people have solutions but have not yet found the problem(s) they could solve. A good management information system should improve the "matching and linking" process between problems and solutions (paraphrased from Kim 1990).

It may also be useful to think of "turning the organization chart upside down" (Peters 1987, pp. 369-370), putting programme clientele at the top of the chart and the head of the national family planning programme at the bottom. Customer-oriented management suggests a very different outlook on management information systems (Palmore 1983).

In fact, part of the new management information systems should be what Peters (1987) calls a "customer information system". He challenges managers he trains to check their in-boxes to assess what percentage of the information they receive is internal as compared to the percentage that is customer-centered. As Peters says (1987, p. 155):

> If what you're processing is internally focused, then so are you.

Is it correct to say that population management information systems have become too internally focused?

F. INFORMATION

The information needed by management is ever changing, and managers need to be sensitive to what new information should be obtained. The sources of data will shift (as, for example, more information is sought from the private sector) and an increased quantity of data can be brought to bear on each management question. The efficiency and impact of management information systems should be measured by the usefulness of the information provided (i.e., the ***appropriateness*** of its format, the ***relevance*** of its content, and the ***timeliness*** of its availability -- see Kim 1988), not just its availability and accuracy.

Integration clearly calls for different information. Programmes other than family planning have usually received far less thorough monitoring and evaluation. The use of baseline and follow-up surveys of the population at large, surveys of programme acceptors, surveys of special groups (the young, the military, factory workers, males, community leaders, urban slum dwellers, and other groups, and useful and accurate service statistics are often rare outside of the family planning area.

Take, for instance, the case of information needed to design information, education, and communication (IEC) strategies. Even for family planning, we too often have been designing strategies with little information to guide us. The recent round of Demographic and Health Surveys, for example, include only one question on sources of family planning information. Outside of the family planning programme, do we have data on knowledge, attitudes, practices, potential communication channels, accessibility, rumours affecting programme services, factors leading to discontinuation, and the socio-economic traits of the clientele most in need of the services?

G. SYSTEMS

What we need are user-oriented, flexible management information systems. We need to consider who should design and who should operate the new systems. In fact, management information systems themselves should be viewed from an open-systems perspective. Management information systems are dependent on an organizational environment and resources outside their control: both outside and inside the integrated programme. The core element in the organizational environment and resources for population management information systems, however, is within the integrated programme: the overall programme's management, its resource allocations, and the like. Today's family planning and maternal and child health programmes are very dynamic, the four topics we have discussed being amongst the most immediate causes. Hence, the environment and resource dependence for population management information systems must be constantly reassessed.

Population management information systems must be able to bring in more and more information from more and more data sources to answer increasingly complex questions and "organize garbage cans". The new systems should accommodate changes in who collects, analyzes, interprets, and uses the data (localized or centralized, public or private sector) as well as permitting the merger of information from a wide variety of sources. To date we have not adapted our management information systems quickly enough to address new programme issues and situations.

H. CONCLUSION

In short, the 1990s should witness a revolution in all aspects of population management information systems. Recycling old techniques, or resorting to very gradual evolutionary tactics, should not satisfy today's programme managers.

Peters (1987, p. 43) states that management information systems used to be:

> Centralized for the sake of consistency, internally aimed

What they must become, he claims, are:

> information use and direct customer/supplier linkups as a strategic weapon managed by the line, decentralization of MIS a must

Peters (1987, e.g. pp. 505-511) makes a strong case for decentralizing information, authority, and planning, and reminds us of what we should never have forgotten: the information generated in management information systems is most effective when it is useful and known to staff at the front line in the

organization, those involved in the day to day operation of the programme. The front line staff are not only the most important information users but also important sources of information for others more removed from daily programme activities.

As each country radically adjusts its management information systems for the 1990s, we hope the information will be widely shared. In the area of management information systems, we clearly need technical cooperation among the developing and newly industrialized nations (Kim 1983; Kim 1988), perhaps a newsletter or informal journal stressing new developments in the field, and a comprehensive communication system both within and between the countries of the region.

Unprecedented levels of responsiveness to programme changes and demands are what we need from management information systems in the 1990s: a revolution.

Chapter 4

THE ADEQUACY OF SERVICE STATISTICS SYSTEMS FOR PROGRAMME MONITORING, EVALUATION AND RESEARCH

by John Cleland

INTRODUCTION

In the 1960s and early 1970s, routine service statistics were the dominant means of programme monitoring and evaluation. A glance at issues of the journal Studies in Family Planning during this era will confirm this reliance on programme-generated data. Progress was gauged largely by the numbers of new acceptors, particularly of intra-uterine devices. Managers devised efficient methods to transmit to evaluation units numbers of acceptors and their characteristics, such as the coupon system or clinic card face sheets. (Ross et al, 1968; ESCAP, 1975). Since that time, several trends have combined to dislodge this supremacy and to erode the utility of information traditionally recorded and reported as part of normal service activities.

Some of these trends are inevitable consequences of the maturation of programmes. Twenty five years ago levels of contraceptive practice were very low in most Asian countries. It made much sense to measure programme effectiveness in terms of acceptors of methods. Most acceptors were new users of programme services and a majority were first time users of any modern method. When combined with information on continuation and use-effectiveness, derived from periodic follow-up surveys, regular compilation of acceptor totals and profiles at national and local levels provided a sound and appropriate information base for managers and policy makers.

Today the situation is very different. In many Asian countries, a large majority of married couples have tried at least one modern method and a substantial proportion is currently using one. In these circumstances, the number of new acceptor is bound to decline, thus sending a false signal that programme impact is waning. (See chapter 5 for further discussion of this point in the case of Thailand). Acceptor statistics may still be useful for monitoring the relative popularity of specific methods but they have very limited utility in estimating overall programme effectiveness or assessing the performance of districts.

Inevitably, there has been a radical shift towards the concept of use prevalence as the main indicator of achievement. The growing popularity of

methods for which acceptance is difficult to define and verify (such as the pill and condom) further reinforced the shift from acceptor-based to use-based indicators. The increasing uptake of these methods also underlines the need for information on use-effectiveness which is known to vary widely between settings.

It is a relatively easy task to keep accurate counts of medical procedures, such as surgery, insertion, or injection, that are usually performed in a clinical setting. It is a much more difficult matter to maintain accurate records of active users, including users of pills and condoms. This requires assumptions based on volumes of supplies distributed or the maintenance of complex and time-consuming surveillance systems.

Additional difficulties are introduced by the proliferation of types of supply source. As a deliberate policy to enhance consumer choice, many Asian Governments have encouraged non- governmental organizations to operate family planning services. Sales of condoms and pills through commercial outlets at subsidised prices via social marketing schemes also play an increasing role in overall contraceptive provision. The challenge posed to traditional MISs by this growing diversity is obvious. Difficulties are most acute in urban areas where multiple supply sources are most common. In this regard, the urbanization of Asia is of profound significance to family planning information systems.

The decline in the ability of conventional programme statistics to meet management or research needs is not confined to output indicators. The measurement of inputs has also become more complicated as a consequence of the growing operational integration of family planning and maternal and child health. In some countries of the region, closer links between health and family planning provision are the result of a de-emphasis of narrow demographic goals, or even the achievement of satisfactorily low fertility levels. In these settings the need has diminished for a large staff dedicated solely to family planning. In other countries, health functions have been added to family planning services because the latter were so efficient and effective. Regardless of the precise motive for this increasing integration or its intrinsic merits, the trend towards multi-purpose services vastly complicates input analysis and in particular the study of input-output relationships. This is so because of the difficulty of apportioning staff time between different types of activity that may be carried out simultaneously.

Measurement of inputs is also complicated by the increasing emphasis on the quality, as well as quantity of services. This change, strongly endorsed by programme managers (ESCAP, 1987) and recently elaborated (eg. Bruce, 1990), implies that simple ratios of clinics, staff or home-visits to population are no longer satisfactory indicators of programme input. What is needed is much more elusive information on the acceptability of services and the precise nature of provider-client interactions. These elements cannot be captured by traditional routine reporting systems.

The purpose of this paper is to assess the adequacy of current management information systems in the light of these trends of the last twenty five years. Interest lies primarily in their adequacy for management judgements, for instance concerning the relative performance of different districts and decisions about resource allocation. This has always been the prime purpose of service statistics systems. Their utility for more formal evaluation and research will also be considered. In particular, the substantial experience gained during the various phases of ESCAP sponsored research into efficiency and impact of programmes will be used to identify the weaknesses of statistical systems.

A. APPRAISAL OF INPUT MEASURES

Programme inputs fall into two broad categories: available resources and activities or process variables. Obviously there is considerable inter-country variability in the nature and availability of information on inputs but the following list is typical:

Resources

- health centres/ hospitals/ beds/ vehicles
- trained staff of various categories in position
- equipment and supplies
- financial budget and expenditures

Processes

- clinics held/patients seen
- households visited
- training activities
- information/education activities

While these types of information are nearly always available in administrative records by no means all are regularly reported upwards from the peripheral level. Indeed the ESCAP Comparative Study of input-output relationships found that "very few measures of input existed in the sense of being reported through the service statistics system" (ESCAP, 1978 p.25). This omission, particularly of resource rather than process variables, necessitated special and costly data collection exercises. It is difficult to ascertain the extent of improvement over the last decade, but the need to report such information on a regular basis is clear-cut. Unless simple data on ratios of staff, vehicles, equipment and health posts to population are available, managers cannot take informed decisions about resource allocation. In many countries of the ESCAP region, there are huge geographical differentials in service provision. Staff vacancies, lack of vehicles and physical plant tend to be concentrated in inaccessible and less developed areas. Similarly, in more conservative parts of

the country, it may prove difficult to recruit and retain female outreach workers. Because demand for family planning services tends to be more fragile in underdeveloped and conservative areas, the fact the programme inputs are also often weaker in these same areas is particularly unfortunate and exacerbates geographical differentials in contraceptive use and fertility.

The remedy is both obvious and inexpensive. Data on financial expenditures and logistical supplies are already available at district or sub-district level and can easily be summarized in regular monitoring reports. It is also a simple matter to add to quarterly or annual reports the numbers of staff sanctioned and in position.

Further insights into the strengths and weaknesses of programme input data is provided by the ESCAP sponsored collaborative research into efficiency and impact. In the 1970s research was conducted in India, Malaysia, Philippines and the Republic of Korea. A more ambitious programme of research took place in the 1980s in Bangladesh, Malaysia, the Republic of Korea and Thailand.

According to the ESCAP secretariat (1987), the results of this substantial research investment were disappointing. Many of the expected input-output relationships were weak, non-existent or even negative. For instance in the Philippines, the effect on contraceptive use of the ratio of motivators to eligible couples was found to be negative. In Thailand, neither of two indicators of input - one based on the assumption that all types of health personnel contribute equally to family planning and the other based only on the number of midwifery centres - was strongly related to output. In a later analysis, alternative measures - number of hospital beds and clinic opening centres - were again weak predictors of output, net of socio-economic development. Similarly the final phase of the Malaysian study found no significant net impact of programme inputs, as measured by perceived access to services or presence of non-programme sources of supply.

A number of conceptual and statistical problems were identified that go some way to explaining the disappointing outcomes. But inadequate programme input data were a major defect of the study.

The main difficulties of measuring input were described as follows:

1. correct allocation of the inputs of multi-purpose workers;
2. correct allocation of the inputs of part-time or voluntary workers;
3. incorporation of non-government programme inputs;
4. uncertainty as to whether family planning workers actually carry out their designated duties;

5. the complexities caused by the fact that certain inputs may influence specific outputs only.

Most of these problems are fairly obvious and need no further elaboration. A few examples, however, will illustrate the intractability of some of them. The difficulty of assessing the input of multi-purpose workers can be demonstrated by reference to quasi-experimental evidence from Matlab, Narangwal and the Danfa projects. All three projects suggest, though do not prove, that community-based workers are more effective at family planning recruitment if they are also able to offer at least some rudimentary health advice and service, rather than concentrating solely on contraceptive motivation and supply. On the basis of this evidence it may be inappropriate to deflate the staff inputs of multipurpose relative to single-purpose family planning workers.

A contrary problem is posed by the existence of workers who are supposed to offer family planning advice and services amidst a range of other duties but do not in fact do so. The male Block Extension Education (BEE) in India and the male Health Assistant (HA) in Bangladesh are good examples. In both cases, their designated duties include family planning but in reality their involvement is marginal and, in many instances, non-existent.

Even with single-purpose family planning staff, it may be incorrect to assume that they are active workers. When supervision is weak, community-based workers in particular may work very short hours. And even when they are working, it is by no means certain that they perform their designated duties. For instance, a detailed study of Family Welfare Assistants (FWAs) in Bangladesh found that many home visits involved no discussion of family planning but were merely a mechanical fulfillment of monthly quotas (Koblinsky et al, 1986).

The last illustration concerns the specificity of some input- output relationships. While certain inputs, such as the ratio of field workers to population, should influence overall contraceptive prevalence, this generality of effect is not true of other inputs. Thus the numbers of hospital beds, or perhaps medical officers, may determine accessibility to surgical contraception and thus influence the number of sterilizations performed; but these inputs may be entirely unrelated to other forms of contraception. Similarly, commercial outlets may influence use of condoms and pills, but probably have no bearing on IUD insertions or sterilizations. Analyses that attempt to relate diverse types of input to a single output measure, such as couple-years of protection, may yield unexpected and misleading results because of the lack of specificity in the analytical model.

None of the ESCAP studies tried to go beyond quantitative measures of input by searching for indicators of quality of services. Yet there is a growing

consensus, strongly endorsed at the 1987 ESCAP seminar for top-level policy makers and programme managers, that more attention should be paid to quality and that this dimension may be crucial in determining acceptance and sustained use of contraception. Quality is an elusive and multi-faceted concept. What may be important in one culture may be insignificant in another. Nevertheless a start has been made by Kumar, Jain and Bruce (1989) towards the goal of defining and measuring quality. They identify the following seven main components.

1. Choice of methods that are readily accessible and affordable.
2. Provider knowledge of contra-indications, clinical procedures and complications.
3. Provider's technical acceptance.
4. Provider's understanding of clients needs.
5. Information given to the clients.
6. Follow-up procedures.
7. Provider-client relations.

No doubt this list can be modified and improved for specific settings. In some countries, the sex of the provider is critically important. In others, the ability of clients to obtain family planning supplies confidentially from a multi-purpose centre may increase acceptability. In yet other settings, where female mobility is restricted, resupply through home visits may be a particularly valuable attribute. However, most, if not all, of these seven dimensions would form part of any comprehensive definition of service quality. A mere glance at the list indicates that most cannot be measured by routine reporting systems. Assessment of provider knowledge and competence has to be made by special studies that involve observation as well as interviewing. Similarly, measurement of providers' understanding of clients' needs and the nature of provider-client relationships can only be gauged by skillful observation together with interviewing of clients themselves. At this juncture, it is relevant to note that most past attempts to measure client satisfaction with services have been a dismal failure. Innumerable surveys, such as those conducted as part of the Contraceptive Prevalence Survey programme, have shown that few clients are prepared to criticize staff or services.

Only two of the seven dimensions of quality are amenable to routine reporting. The first is effective choice of methods, which can be partially assessed by data on availability and on uptake of specific methods. The second relates to follow-up procedures. The number of domiciliary follow-up visits to users and client revisits to clinics could be collected and reported routinely and would provide some indication of their adequacy.

The limited ability of routine reporting systems to measure quality of services is no doubt a serious drawback. However, it is not easy to assess the precise consequences for programme evaluation studies, because there is not much evidence to indicate the strength of the relationship between service quality and acceptance or sustained use of contraception. Jain (1989) has demonstrated that choice of methods typically influences the level of use. The advent of a new method adds a new tier of users rather than merely encouraging method switching. The whole Matlab experience supports the view that service quality, particularly in the form of regular home-visits, is important when demand for fertility regulation is fragile (Philips et al, 1989). Similarly, Phase 1 of the Bangladesh impact and efficiency study indicated that workers' commitment was a more important influence on contraceptive use than mere numbers of workers (Mahbud, 1987). The third phase of the Korean study showed that highly efficient areas were characterized by programme officials with good morale and competence (Park, 1987). An IPPF multi-national study indicates that client satisfaction at the first visit to a clinic predicts continuation of method use. Women who think that the time spent by them at the clinic was too long or too short are less likely to continue using the method than those who considered the time spent was satisfactory (Huezo, 1990).

These pieces of evidence support the humane and common sense assumption that service quality does make a difference. But its effect is likely to vary widely between countries and, as mentioned earlier, different dimensions of quality may be crucial in some countries and not in others. Where demand for fertility regulation is very strong, the quality of family planning services may be less critical. Individuals may be prepared to suffer long waiting times and unsympathetic staff if their need for contraception is great. Conversely, when demand is weak or tentative, poor staff attitudes or clinic procedures may be strong disincentives for successful use. Clearly, a high future research priority is to investigate the links between service quality, defined in a variety of ways, and contraceptive adoption and use.

B. APPRAISAL OF OUTPUT MEASURES

As mentioned earlier, there has been a transition in MISs from acceptor statistics to the concept of contraceptive prevalence or couple years of protection. Certain methods, such as sterilization and IUD, continue to be reported in terms of acceptance. Attrition rates are applied to these figures to take account of the aging of sterilization cases and discontinuation of IUDs. Other methods, such as pill, condoms, and injectables, are usually now reported in terms of gross distribution or sales. These figures are then converted into person-years of use on the basis of annual average consumption per couple. Method-specific figures are typically reported upwards from peripheral units and

the conversion to summary output indicators is performed at a higher level in the reporting chain.

There are several technical problems with these procedures:

1. Use-effectiveness may vary widely between methods. We know that both theoretical and use-effectiveness of sterilizations, IUDs, injectables and implants are very high, because these methods do not require a behavioural contribution from users. But this is not true for the pill or condom. Indeed, the data summarized by Mauldin and Segal (1986) suggest a very wide range between countries in use-effectiveness with a 15 per cent annual failure rate as the upper bound for the condom. Yet the implicit assumption underlying most computations of output is that all methods are used with equal effectiveness. Thus thirteen cycles of pills are often taken to represent one couple-year of protection, equivalent to, say, four injections. In terms of likely fertility - impact, however, the contribution of pill use may be overstated because of its low use-effectiveness compared to injectables or certain other methods. An adjustment factor is needed to take these method-specific differences into account. Yet, all too often, representative and up-to-date estimates on use-effectiveness are not available.

2. There is a particular problem in converting condom distribution figures into use estimates. A crucial assumption has to be made concerning frequency of use. There is a very wide divergence between countries and investigators in assumed annual consumption, from 70 to 240 condoms per couple per year. The practical importance of these different conversion formulae, of course, depends on the popularity of condoms. In countries where their contribution to the overall method mix is 10 per cent or less, it will make little difference whether a high or low consumption rate is taken. Conversely, where condoms are widely used, false assumptions about the rate of use may seriously distort nationwide estimates of prevalence and areal comparisons. The remedy is straightforward: detailed investigations of condom consumption among users. Even the addition of a single question in surveys on the number of condoms used in the last seven days would be a step forward. It is surprising how little attention has been paid to this problem.

3. It was suggested above that sound up-to-date estimates of use-effectiveness, particularly of pills and condoms, are needed to refine output measures by making them demographically appropriate. The same holds true for IUD continuation rates

and the mean ages of sterilization acceptors. Yet even when these data are available at the national level, their application to small areas is not valid. Major differences undoubtedly exist between regions and areas of a country in the ability and willingness of couples to use methods effectively and to continue with IUD use. Any output indicator that fails to take into account this variability is not fully adequate. In theory, continuation rates for IUD could be collected and reported regularly and indeed some information systems do contain this type of information. Unfortunately, discontinuation data are nearly always grossly defective, not least because clients frequently do not return to the same clinic for removal. Even in well controlled research projects, IUD removals tend to be severely underestimated (eg. Fisher and de Silva, 1980). The prospects for local level data on use-effectiveness are even poorer.

Aside from these technical deficiencies in conventional output indicators, the biggest problem concerns validity. Most comparisons of census or survey data on contraceptive use with service statistics data reveal rather large discrepancies that suggest overreporting in the latter, though underreporting in surveys may contribute to the difference (Morris and Anderson, 1984). The most clear-cut instance relates to the 1965-69 Pakistan programme. The results of the Impact Survey which showed very low use levels largely destroyed the credibility of this programme that had been claiming substantial success based on routine acceptor statistics (Robinson et al, 1981). In Indonesia, work by Streatfield (1985) concludes that programme data on use are upwardly biased. The earlier correspondence of service statistics with survey evidence was probably the result of two offsetting errors: overreporting by programme staff and omission of non-governmental contraceptive supplies. (Ross and Poedjastoeti, 1983). In Philippines, the Commission on Population in the 1970s estimated that the magnitude of overreporting of acceptors was 25 to 30 per cent (ESCAP, 1978). In Bangladesh, two national surveys in 1989 yielded prevalence levels of 23 and 24 per cent for modern methods . For the same year, the MISs gave a figure of 30 per cent, while the nation-wide couple registration exercise estimated the prevalence of modern method use to be 34 per cent.

As pointed out in a report from the International Centre for Diarrhoeal Disease Research, Bangladesh, differences between programme-based estimates of use and the results of independent surveys may arise in a number of different ways (MCHFP Extension Project, 1989). Field workers may unintentionally misclassify couples who receive contraceptive supplies as users. Condoms may be used for non-contraceptive purposes. Women may have IUDs removed without informing field workers. Possible differences in denominators further complicate the comparison. Any underestimate of the numbers of eligible

couples in calculating programme-based prevalence rates will bias use levels upwards.

The most worrying validity problem concerns deliberate overstatement by workers of the number of acceptors or users. This danger is always present when career prospects depend on performance, when a target system is in force or when there is financial benefit from overreporting. The extent of deliberate overreporting varies over time, and between countries, and by method. In Bangladesh and India, the problem is probably confined to the IUD. A follow-up survey of a nationally representative sample of IUD acceptors in Bangladesh reached the conclusion that about 40 per cent of acceptors were fictitious (Kamal et al, 1990), thus confirming suspicions based on an earlier analysis showing that IUD insertions exceeded the number of devices supplied by 20 per cent (Olsen and Evison, 1989). A follow-up study in six districts of Orissa, India came to similar conclusions (Orissa Family Welfare Project, 1988). Not only were contact and response rates lower for IUD than for tubectomy acceptors, but the percentage of interviewed acceptors who denied ever having had an IUD insertion ranged from 15 to 41 per cent in the six districts. In the case of tubectomy, the number of such denials was trivial.

Inflation of acceptors or users on this scale seriously erodes the value of service statistics. If the degree of deliberate overreporting was the same for all areas, measures of the relative effectiveness and efficiency of different areas would not be affected. But this is clearly not the case in Orissa nor in Bangladesh. The study by Kamal et al. shows large district variations in the estimated extent of overreporting which no doubt reflects the differences in verification procedures and attitudes of local officials. Districts reporting particularly large numbers of insertions were found to have the highest falsification levels.

To conclude this section, one final problem of programme output measures should be mentioned: the difficulty of obtaining reliable data on commercial or subsidized sales of contraceptives in a geographically disaggregated form. Retailers are often reluctant or unable to provide sales figures. Distributors and wholesalers typically maintain better records but it is never easy to convert these into district-level estimates. The implications for programme monitoring and evaluation can be severe. In areas well served by commercial or private supply sources, programme performance is likely to be depressed, in comparison to areas where the government programme is the single source of advice and supplies. Managerial judgements or more analytical studies of programme effectiveness that fail to take into account this factor may be seriously in error.

C. CONCLUSIONS

The growing complexity and sophistication of family planning programmes in Asia has progressively undermined the appropriateness of traditional reporting systems for monitoring, research and evaluation. As family planning services become more varied and integrated with other activities, assessment of programme inputs and activities has become much more difficult than previously. Similarly, it has become harder to maintain accurate and valid measures of programme effectiveness in terms of contraceptive prevalence levels. Thus there is an increasing reliance on independent surveys to monitor family planning progress.

Surveys will continue to be an indispensable tool for monitoring and evaluation. But they are expensive, slow to produce results and cannot provide data at the level of small districts. Hence they can never be a satisfactory replacement for systems that provide local reports on a regular basis for small areas.

What is the best response to the challenge posed to MISs by the changes of the last twenty five years? There is no single solution that will suit the widely diverse circumstances of the region. In the more urbanized countries, with high use levels, low fertility and a proliferation of sources of contraceptive advice and supply, programme-generated statistics are probably doomed to become increasingly irrelevant. Expansion of the scope and detail of routinely reported data on programme inputs and outputs is likely to prove a poor investment in this type of setting.

In other settings, such as much of rural South Asia, the appropriate response may be quite different. Programme sources of supply are still dominant and demographic goals remain the highest priority. Both the Indian and Bangladesh programmes have made a huge investment in the implementation of couple-registers. These registers are capable of supplying invaluable information on process variables (eg. home visits) and detailed output measures (eg. use-continuation, method switching). Regular reporting of such a rich array of data to the central level is quite unrealistic. But exciting possibilities now exist for much more useful and detailed monitoring of programme performance at intermediate levels.

Chapter 5

THE CONTRIBUTION OF MULTI-ROUND DEMOGRAPHIC AND HEALTH SURVEYS AND CONTRACEPTIVE PREVALENCE SURVEYS TO MANAGEMENT INFORMATION SYSTEMS

by Peerasit Kamnuansilpa

INTRODUCTION

Thailand is one of the few developing countries that has a reliable series of national sample surveys of contraceptive use and health behaviours. Three rounds of contraceptive prevalence surveys (CPSs) were conducted between 1979 and 1984. The Research Center of the National Institute of Development Administration (NIDA) conducted the first two surveys under contract with Westinghouse Health Systems. The Institute for Population and Social Research (IPRS) at Mahidol University joined NIDA to conduct the third survey which was done independently of Westinghouse Health Systems. For all three rounds, the Family Health Division of Ministry of Public Health in Thailand provided collaborative consultations.

The Thai Demographic and Health Survey (TDHS) was carried out in 1987 by the Institute of Population Studies (IPS) of Chulalongkorn University with the financial support from the United States Agency for International Development (USAID) through the Institute for Resource Development at Westinghouse. The Institute of Population Studies was responsible for the overall implementation of the survey including sample design, preparation of field work data collection and processing, and analysis of data.

A. BRIEF DESCRIPTION OF THE SURVEYS

This section provides a brief description of the three rounds of CPSs and of the TDHS.

CPS1

Field work for the first CPS took place from November 1978 through January 1979. Unlike the other surveys conducted in Thailand, single as well as ever-married women were interviewed for CPS1. A detailed description of the

sample and method is provided in the final report of the results (Suvanajata and Kamnuansilpa, 1979). The total sample consisted of 4,025 women (including 1,032 single women). The rural portion of the sample was selected by procedures parallel to those used to draw the sample for the Survey of Fertility in Thailand (SOFT). A major concern in drawing the rural sample was to increase comparability with SOFT. Thus, the provinces selected for the CPS1 sample were drawn from the list of 34 provinces included in the SOFT rural sample (excluding Bangkok). From each of the selected provinces, one district was drawn from those included in SOFT, whereas the other was independently and randomly selected from those not included in SOFT. The final sample consisted of women from 136 villages located in 34 districts of 17 provinces.

The urban portion of the CPS1 sample was drawn entirely from the Bangkok metropolis. Provincial urban areas were excluded entirely from the CPS1 sample. The proportion of the total CPS1 sample that comes from the Bangkok metropolis is approximately equal to the proportion of Thailand's population that lives in areas officially classified as urban (including provincial urban areas). Examination of results suggests that the use of a sample from the Bangkok metropolis in CPS1 to represent the entire urban population of Thailand had little effect on the representativeness of the sample at the national level. Comparison of results from the urban sample of CPS1 with those from the urban sample of the other surveys, however, is more hazardous; potential incomparability should be borne in mind when interpreting findings.

CPS2

The second contraceptive prevalence survey (CPS2) was conducted in 1981 from March through June with interviewing concentrated in April and May. The procedures employed in CPS2 were designed to yield a self-weighting nationally and regionally representative sample. Unlike CPS1, the sample of CPS2 covered only ever- married women. A detailed description of the sample and method is provided in the country report (Kamnuansilpa and Chamratrithirong, 1982).

The total sample of CPS2 comprised 7,038 ever-married women aged 15-44. Multistage sample techniques were employed to select both rural and urban samples. The procedure used to select the rural portion of the CPS2 sample paralleled those in CPS1 (which in turn was drawn from the list of 34 sample provinces in SOFT). In addition to the 17 provinces covered in CPS1, seven more provinces were randomly selected, with probability proportional to size from the remaining provinces. Two districts were selected from each of the sample provinces. One of the two districts in each of the 17 provinces covered in CPS1 was randomly selected from the two districts covered in the first round; the other was randomly selected from the remaining districts. Next, in each selected district, two townships were drawn. In the districts that were also selected in

CPS1, one of the two townships was the same as the first round. In the new provinces, each township was new. In the next step, two villages were randomly selected from each township drawn in the previous stage. In the township that was selected in the first round, the two villages were the same as in the first round. The final rural sample of CPS2 consisted of 5, 823 ever-married women from 192 villages of 96 townships, 48 districts, and 24 provinces.

The urban sample of CPS2 was drawn from the Bangkok metropolis and provincial municipal areas separately. Thus, the urban portion of CPS2, unlike that of CPS1, is representative of all of urban Thailand and not just the Bangkok metropolis. Interviewing yielded a total of 765 respondents in the Bangkok metropolis and 450 in provincial urban areas.

CPS3

Field work for the third contraceptive prevalence survey (CPS3) was carried out from April through July 1984. The sampling procedures employed were designed to yield both a nationally representative sample and followed a multistage sampling scheme similar in most respects to CPS2. Unlike the previous round, however, the design was based on a weighted sample scheme. To maximize comparability and for the purpose of trend analyses, all provinces selected in CPS2 were included in the sample. In addition, two purposively selected provinces with Muslim majorities were also included. The same total of 24 provinces, plus Bangkok, as in CPS2, were treated as the national sample in CPS3. The two specially selected Muslim provinces are excluded from analyses intended to be nationally representative.

The total size of the sample in CPS3 was 7,576 ever-married women aged 15-49. Among these 7,576 respondents, 317 were from the purposively selected Muslim provinces, leaving only 7,259 cases to be employed as the national sample. The number of respondents is more or less equal for each of the four major regions and Bangkok. The sample design of CPS3 required weighting of the data in order to obtain nationally and regionally representative results. Details of both the sampling scheme and weighting procedures are provided in the country report (Kamnuansilpa and Chamratrithirong, 1985).

TDHS

The Thai Demographic and Health Survey (TDHS) was a nationally representative sample survey. The field work was largely carried out between March and June 1987. The data collection was divided into two main phases. The first phase was from 17 March - April and the second phase from 17 April - 6 June 1987.

The sampling procedures employed were designed to provide independent estimates for the four major regions of the country plus the Bangkok Metropolitan Area as well as for the urban and rural populations. To achieve this, the population was divided into six separate sampling domains: The Bangkok Metropolitan Area, all provincial urban areas, and the rural areas in each of the four regions. As in CPS2 and CPS3, provincial urban areas comprise all administratively defined municipal areas outside of Bangkok. The total urban category consists of Bangkok plus provincial urban areas.

In each of the sampling domains, a multi-stage sample design was employed. In Bangkok, households were selected in two stages. First, a systematic sample of 48 blocks was selected with probability proportional to population size (PPS). Thereafter. households within selected blocks were listed just before the survey and selected so as to obtain a sample with a reasonably uniform overall selection rate for households. In other domains, the sample was selected per domain with PPS in three stages: selection of 24 districts; selection of 2 villages per district; and finally, listing and systematic selection of households within each selected village. Again, the objective was to obtain a sample with reasonably uniform selection probabilities for households within each domain. The completion of the selection procedure described yielded a total of 9,045 households and 6,775 ever-married women aged 15 to 49 years. The detailed sampling and weighting procedures is provided in the main country report (Chayovan, Kamnuansilpa and Knodel, 1988).

B. UTILIZATION OF CONTRACEPTIVE PREVALENCE DATA FROM THE CPS AND DHS

An extremely important use of the CPSs and TDHS is to evaluate the achievement and performance of the National Family Planning Program (NFPP). The evaluation of the NFPP performance focused on the output of the programme, as measured by the contraceptive prevalence rate. However, some attention was also placed on the impact of the family planning program on the fertility trend. It was estimated that the impact of NFPP on fertility in Thailand is significant.

The series of CPSs (1978, 1981, and 1984) and the TDHS had a significant impact on how central policy makers evaluated the programme of family planning in Thailand. In the mid-1980s the NFPP made an important shift from viewing the number of new acceptors to the contraceptive prevalence rate (CPR) as an indicator of achievement. This was an important step in the management of NFPP. Managers of NFPP naturally realized that as the programme matured, indicators of a young programme, such as counts of new acceptors, are no longer an appropriate barometer of programme performance.

In the early stage, managers can monitor a programme by looking primarily at the increase in numbers of new acceptors. At a later stage, when the majority of the eligible population has already accepted family planning, the rate of increase diminishes. In this situation, managers need to look at the CPR instead.

Table 5.1 presents data on numbers of new acceptors reported to the NFPP from 1970 to 1988. In general we can see that the number of new family planning clients officially attributed to the programme (which includes most acceptors of affiliated private programmes) has grown annually, except between 1981 and 1982. However, the rate of increase was low in the 1980s as compared to 1970s.

Table 5.1. New acceptors reported to the Thai national family planning programme, 1970-1988

Year	No.	% increased	Year	No.	% increased
1970	225,439	+ 73.1	1980	1,120,966	+ 7.0
1971	401,187	+ 78.0	1981	1,125,816	+ 0.4
1972	456,694	+ 13.8	1982	1,116,481	- 0.8
1973	422,176	- 7.6	1983	1,183,198	+ 6.0
1974	494,479	+ 17.1	1984	1,316,354	+ 11.2
1975	561,694	+ 13.6	1985	1,419,977	+ 7.9
1976	664,895	+ 18.4	1986	1,547,005	+ 8.9
1977	829,405	+ 24.7	1987	1,564,031	+ 1.1
1978	940,719	+ 13.4	1988	1,580,132	+ 1.0
1979	1,039,774	+ 10.5			

Source: Data for 1970-1987 are from Family Health Division, ***Annual Report,*** 1988
Data for 1988 are from service statistics.

Another potential problem of using new acceptors, which are normally derived from periodic reports of service provision is the reliability and timeliness of the reports. The figures reported in table 5.1 are somewhat inflated in the sense that persons classified as new acceptors include those switching methods as well as several other categories of persons who were previously using contraception. Unlike data on number of new acceptors, the CPR as derived from surveys provide more accurate information on the trend of contraceptive use.

Table 5.2 presents data on CPRs from surveys. It can be seen that the rates continued to increase even in the 1980s when the number of potential new acceptors had decreased. The implication here is that the NFPP was not only able to maintain a high proportion of the couples who already had practiced a method of contraception but was also quite successful in recruiting genuine new acceptors, even in the 1980s. But again it is important to note that the percentage of new acceptors among eligible couples declined in the 1980s.

Table 5.2. Percentage currently practising specific methods of contraception among currently married women aged 15-44, 1969-87

Year	Survey	Pill	IUD	Male steril.	Female steril.	Injection	Condom	Others	All meth.[a]
1969/70	LS1	3.8	2.2	2.1	5.5	0.4	0.0	0.7	14.8
1972/73	LS2	10.6	4.7	2.8	6.8	0.9	0.1	0.5	26.4
1975	SOFT	15.2	6.5	2.2	7.5	2.1	0.5	2.8	36.7
1978/79	CPS1[b]	21.9	4.0	3.5	13.0	4.7	2.2	4.2	53.4
1981	CPS2	20.2	4.2	4.2	18.7	7.1	1.9	2.7	59.0
1984	CPS3	19.8	4.9	4.4	23.5	7.6	1.8	2.6	64.6
1987	TDHS	20.0	7.2	5.5	22.4	9.2	1.2	2.0	67.5

Notes :LS1 and LS2 refer to rounds 1 and 2 respectively of the National Longitudinal Study of Social, Economic and Demographic Change; SOFT refers to the Survey of Fertility in Thailand; and CPS1, CPS2, and CPS3 refer respectively to the first, second and third contraceptive prevalence surveys. Results for LS1 and LS2 are derived by combining separate rural and urban surveys taken one year apart and weighing the results to reflect the different sampling factions used.

[a] : Rounding errors, minor coding discrepancies, and users of unspecified methods account for the small differences between the sum of the percentages practicing individual methods and percentage for all methods.

[b] : Excluding provincial urban.

Source : Chayovan Napaporn, Peerasit Kamnuansilpa and John Knodel ***Thailand Demographic and Health Survey, 1987***, Bangkok: Institute of Population Studies, 1988.

Although there is concern about comparability and methodological differences among the major national surveys conducted in Thailand, the CPSs and the TDHS also collected information suitable to calculate the total fertility rate (TFR) to monitor fertility trends.

Figure 5.1 compares TFRs from three rounds of CPSs and the TDHS with TFRs derived from surveys conducted earlier. Figure 5.1 shows that the total fertility rate was 6. 2 births per woman in the 1960s and declined to 5.4 and 5.1 in 1972 and 1975 respectively. The largest decline started in the mid 1970s. By 1978 the total fertility rate dropped dramatically to 3.7. This was consistent with the largest increase in CPR. By 1987, the total fertility rates as reported by TDHS was virtually at a replacement level of 2.2 births per woman.

Another use of CPS and DHS is in prioritizing areas of programme concern. The results from the surveys indicated there were regional differences in the CPRs (see table 5.3). The south is clearly characterized by the lowest prevalence level. Contraceptive use in the North is the highest. While contraceptive use in the Northeast is higher than the South, the region in itself has a lower CPR than the other four regions. In utilizing the results from the surveys, the NFPP reviewed the differences in CPR by region. Particular attention was placed on the Northeast and the South. Starting in 1985, the NFPP concentrated its resources in the two regions of low CPR, namely, the Northeast and the South. By 1986, the NFPP implemented a new strategy to increase the national CPR target of 75 per cent by including all 17 provinces of the Northeast and some Southern provinces into the High-Priority Districts Project, funded by USAID over a four-year period from 1986 to 1989.

In addition to utilizing prevalence rates to prioritize regions, the NFPP looked into ways to close the gaps between the urban and rural sectors. Data on sources of contraceptive from both CPS and DHS indicated that about 80 per cent of current users received their contraceptives from government sources and the percentage of users who received services from private sources was higher in the urban than in the rural areas. The NFPP recognized the need to mobilize its limited resources to meet the needs of the important and large segments of the rural population. The needs of urban residents were increasingly being met by the private clinics (of mostly government physicians) and by the ever expanding number of drug stores. The NFPP strategy was to increase contraceptive sources in the rural areas. One of the first actions taken by the NFPP was to authorize auxiliary midwives in peripheral health centres to prescribe the pill. As a result, the pill was the dominant method in the earlier period of the NFPP. Later on as the Ministry of Public Health gradually trained more health personnel in IUD insertion, female sterilization and vasectomy, the situation with regard to availability and accessibility of a range of methods was improved.

Figure 5.1. Total fertility rates in Thailand 1964-1987

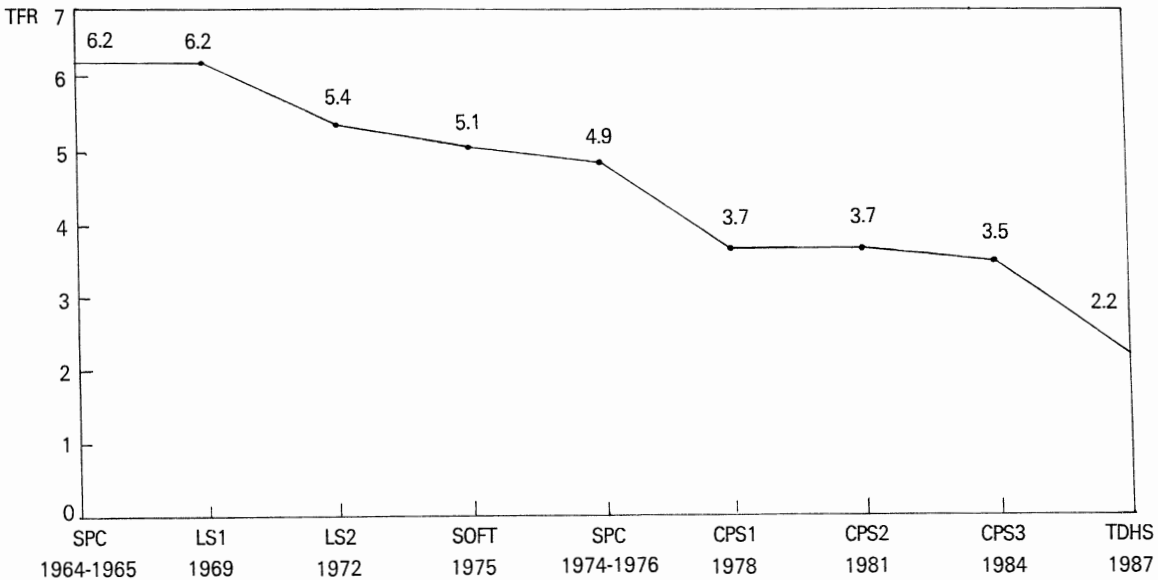


Table 5.3. Percentage currently using a method of contraception among currently married women, aged 15-44, by region.

	Bangkok	Central	North	North east	South
CPS2	65.2	64.3	65.8	54.8	43.4
CPS3	71.8	68.8	71.4	60.8	50.4
TDHS	67.4	71.4	74.7	66.5	51.8

Another use of contraceptive prevalence rates derived from CPSs and TDHS is to assess the accuracy of the service statistics estimate of active users. Most family planning programme evaluators accept that sample surveys provide more accurate estimates of contraceptive prevalence for the national and regional level than estimates derived from service statistics. The most recent prevalence data used by the Research and Evaluation Section of the Family Health Division, Ministry of Public Health were from the 1987 Demographic and Health Survey.

The CPRs from the national surveys were compared with the active users rates which are an estimate of contraceptive prevalence based on the monthly activity reports submitted by government and certain private service outlets throughout Thailand. The numbers of users of the pill and injectable are estimated from the amount of supplies that are distributed over a three-month period. Users of the IUD and sterilization are estimated from a 1980 census base count which is increased by the number of new acceptors each month and reduced by the estimated number of discontinuing users. All these user totals are then related to estimates of numbers of married women of reproductive age (MWRA) so that coverage rates can be generated.

Errors in prevalence rates generated by the service statistics may occur because of misreporting, coding and computerization of the user data. The estimate of the MWRA is also another potential source of error. Comparison with survey data cannot tell us whether any error is in the numerator or denominator or both; but both CPSs and TDHS can indicate the magnitude of errors and which methods are most affected. It must be recognized that both CPSs and TDHS are subject to sampling error. However, the errors at the national and regional levels are small.

These differences between service statistics and survey based estimates serve as a correction factor for the Family Health Division to assess and adjust the service statistics as well as the CPRs generated from them. Furthermore, by assuming that the errors within each region are reasonably uniform across

provinces, the Family Health Division is able to calculate estimates of CPRs by province and by method.

C. RATIONALE FOR MAINTAINING A SERIES OF SAMPLE SURVEYS

Family planning activities have increased substantially in Thailand since the inception of the NFPP in 1970 and their impact is apparent in terms of both increasing new acceptors as well as prevalence rates and falling fertility rates. While this achievement is impressive, it has been realized that improved management and greater sensitivity to the specific needs of the population are required to maintain or increase the already high prevalence rate. The difficulties in obtaining accurate information based on service statistics alone (which do not include users obtaining supplies from commercial sources) is still an important reason to call for repeated surveys such as CPSs and DHS. In addition, the impact of family planning programme on fertility as well as its correlates with other health parameters are of great interest to programme managers and national population and health policy makers. Surveys such as CPS and DHS usually can be used to provide quick information for planning.

The need to maintain a programme of regular sample surveys can also be expressed in the context of MISs in the 1990s. As increasing emphasis is placed on the necessity of having a viable MIS to monitor programme performance regularly as well as to increase the cost-efficiency of health and family planning programmes, more data are needed. This could be counter- productive if the system becomes overloaded with data. Already there have been complaints from the health workers at the peripheral health centres that too much time has to be spent on recording and reporting data. According to one study on health information systems conducted in Srisaket, a province in the Northeast of Thailand, health workers have to spent on average about 20 per cent of their working time, or one day a week, on recording and reporting data. This situation is thus serious in terms of the burden on the health workers and the reduction in time for providing health services. Therefore, the health information system should be protected against the problem of information overload.

A sample survey has the advantage of not overloading health workers as it is normally done by an outside group such as a university. Its disadvantage, however, is that it is usually time consuming and expensive. Therefore some modifications in the methodology of sample surveys need to be considered. Already the method of "Rapid Survey", relying on cluster sampling with a relatively small sample size has been introduced as a device to monitor programme performance. The implication is that, while there are good reasons to maintain sample surveys, the survey method itself needs to be modified to meet the

programme needs and challenges, particularly when financial support from foreign donor agencies is dwindling.

In any MIS there are two main possible sources of data : service reporting and surveys. These two different systems of information should be periodically checked against each other to evaluate the MIS in itself. Therefore maintaining and institutionalizing repeated sample surveys should be regarded as one of the best strategies to improve the MIS as well as the service delivery system.

An example of how a sample survey can help refine the MIS is seen in a secondary analysis of data from TDHS by Laing and Wongboonsin (1990). The data from TDHS were analyzed to study contraceptive continuation and failure. The life-table technique was used to analyze contraceptive users who obtain supplies from non-programme as well as programme sources. Data from TDHS were also analyzed to assess the impact of method switching on continuation rates. The results provide a basis for assessing the validity of the use status estimates from programme data and continuation rate survey data collected by the NFPP. This example illustrates the use of nationally representative survey data to refine the continuation and failure rates from follow-up surveys. Thus, it is clear that a series of national sample surveys should be maintained as part and parcel of the MIS. Data from surveys will be a crucial part of any overall MIS in the coming decades.

Chapter 6

METHODOLOGICAL ISSUES IN PROGRAMME EVALUATION*

INTRODUCTION

The Amsterdam Declaration (1989) emphasized that national population goals and objectives for the coming decade and beyond should encompass, inter alia, the following:

- raising contraceptive prevalence in developing countries so as to attain at least 56 per cent of women of reproductive age by the year 2000, thereby increasing the currently estimated 326 million user couples to 535 million couples;
- reducing the proportion of married women and men who are using unreliable contraceptives for birth spacing or limitation, as well as very early marriages and teenage pregnancies;
- decreasing the infant mortality rate to at most 50 per 1000 live births by the year 2000 in all countries and major sub- groups within countries; and
- reducing maternal mortality from all causes, including illegal abortion, by at least 50 per cent by the year 2000, particularly in regions where this figure exceeds 100 per 100,000 births.

One of the critical basic activities needed for the achievement of these goals is to increase efforts to collect, analyze, disseminate and use data on population policy and programme planning. The recent UNFPA review of the country population programmes concluded that a combination of the following strategies are necessary for programme success (Keller et al., 1989):

- Strong and effective political commitment;
- creating greater demand for family planning/MCH services;
- expanding the availability and accessibility of services including utilization of private sources of services/supplies;
- increasing acceptability of services;
- improving community participation;
- judicious use of incentives and disincentives;

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* Prepared by the ESCAP secretariat.

- augmenting sufficient organizational supports such as efficient personnel, sound financial system, good logistics and supplies system, effective supervision and training; and
- improving management information systems (MIS) and utilizing results of research and evaluation for programme improvement.

Over the past decade, the number of countries that has adopted family planning/MCH programmes to reduce fertility has increased. In view of the increasing outlay of funds and other resources invested in the programmes and the possibility that international funding may be reduced, it becomes crucial for programmes to be efficient and cost effective. In order to achieve this, it is necessary to monitor and evaluate programme performance as well as programme impact on fertility decline and health improvement.

A. CHANGING CONCEPTS OF FAMILY PLANNING PROGRAMMES

Over recent decades, different types of family planning programme have been tried. They included: (a) the clinic approach; (b) the extension and community approach; (c) the "beyond family planning" (Berelson) approach; (d) the integrated family planning approach (with health/MCH and other development programmes).

In the 1960s, many developing countries began launching national family planning programmes, mostly using the clinic approach. This approach was slowly supplemented by the extension and community approaches that bring supply points near to the potential clientele through commercial outlets and rural depots/centres and through utilization of non-governmental agents such as medical practitioners. These approaches were complemented in countries by the "beyond family planning approach" including the deployment of incentives and disincentives to spread and intensify small family norms. The World Population Plan of Action, adopted at the World Population Conference in 1974, requested governments to consider integration and coordination of family planning programmes with health and other services designed to raise the quality of family life. In the ESCAP region, this plan of action led to increased emphasis on a multi-disciplinary and integrated approaches to national policy with particular reference to population and the social aspects of development planning. The appraisal of the World Population Plan of Action concluded that family planning services are usually integrated with maternal and child health programmes but are less integrated with programmes concerned with social and economic development.

B. EVALUATION APPROACHES

The principal objectives of national family planning programmes are to increase knowledge of effective family planning methods and motivation of the couples to accept and practice those methods, as well as to provide regular supplies and services so that couples will be able to space and regulate the number of children they desire. These goals hold whether programmes adopt the clinic approach, the community approach, the "beyond family planning" approach, integrated approach or a combination of approaches.

Similarly, various approaches to the evaluation of national family planning programmes have been utilized, depending on the perspective of the evaluation. Four different, though not mutually exclusive, approaches have been used: the goal attainment approach, the goal-free or system approach, the sociological approach and the economic approach. The last two approaches were fully discussed in the United Nations publication "Measures, Policies, and Programmes affecting fertility, with particular reference to Family Planning Programmes" (U.N. Publication, Sale No. E.72.XIII.2 : Chapter IV).

In the goal attainment approach, a family planning programme can be described in terms of a series of objectives, in some functional and hierarchical order. The ultimate programme impact objectives are most directly related to the programme goal, while the intermediate impact objectives concern the outcomes of programme activities. For example, the ultimate impact objectives can be the reduction of fertility to a targeted level, and the intermediate impact objectives can relate to contraceptive use rates or knowledge of or attitudes toward contraception. At the operational level, programme management objectives are related to programme activities and resources needed to achieve the impact objectives. Specifically, they relate to goals in: allocation of resources to clinics at community level; recruitment and training of staff; IEC activities; contraceptive use and coverage; distribution of contraceptives through community-based and commercial channels; and development of structure and facilities to enhance programme operation.

Conversely, the goal-free or system approach does not require quantitative objectives or targets for each component programme or activity. Based on the results of programme activities, strategies and operation will adjust, after taking into account the performance of the whole system. This implies that each service outlet will set its own workload based on its resources, and its performance will be monitored and evaluated accordingly. The assessment of the functions and performance of all the sub- units and their activities will provide useful information for programme changes and improvement.

In the sociological approach, evaluation involves applications of social science methodologies to assess the family planning programme as a social

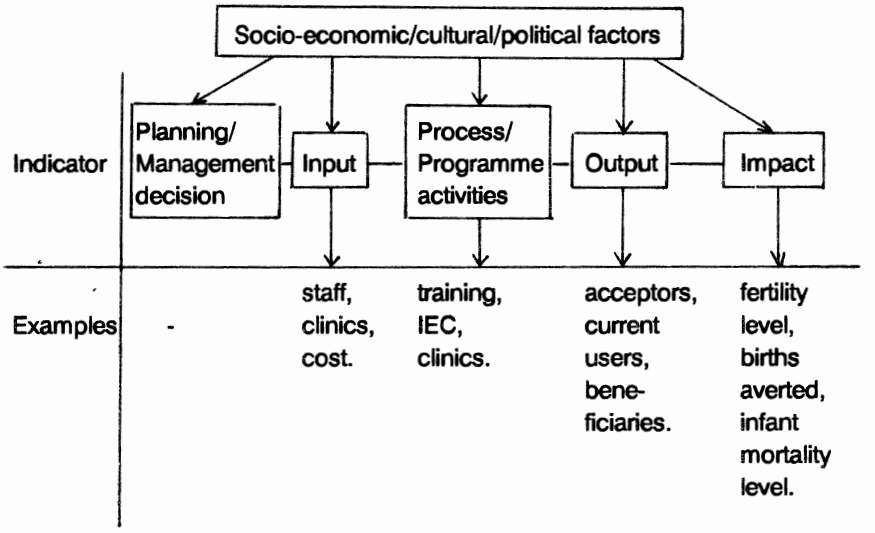
action programme. It focuses on the studying behavioural changes and their interactions with attitudes, motivations and accessibility, as well as on factors influencing them. Finally, in the economic approach, evaluation stresses on cost-effectiveness and cost-benefit analyses, requiring sophisticated statistical techniques.

C. METHODOLOGICAL ISSUES AND PROBLEMS

Lack of conceptual framework

Particularly in integrated programmes, the conceptual framework for undertaking the evaluation is not sufficiently clear. Suitable frameworks are needed to determine demographic objectives for which various specific types of integration are proposed. They will also facilitate the specification of causal mechanisms involved in producing the expected effects and the anticipated synergistic effects.

Most family planning programmes have the following simple framework for their programme evaluation.



Concepts and measurements of input, process and output indicators are well discussed in various U.N. reports, though problems still remain.

When related to socio-economic, cultural and political factors, these indicators, can produce information for decision-making at planning and management levels. For example, inputs such as staff or facilities are often

allocated according to socio-economic and political settings or considerations. Similarly, process and output indicators can be used in conjunction to the socio-economic, cultural and political variables, to assess programme effects. A combination of these indicators can also elucidate aspects of programme impact, such as number of births averted or percentage of children under one year of age who have been immunized. Long-term impact such as fertility reduction or infant/maternal mortality reduction can be estimated, but their reliability will depend largely on the availability of appropriate and precise data.

Frequently, programme effectiveness is assessed by input/output ratios. For example, ratios such as cost per family planning acceptors/continued users or cost per MCH beneficiary, are often used to indicate the cost-effectiveness of each service point. This type of simple ratio may be criticized for its failure to take into account the varying influences of socio-economic/cultural environments. The ESCAP Study on Impact and Efficiency of Family Planning Programmes (1988) has elaborated this issue.

Potential fertility and impact evaluation methods

The concept of potential fertility is a crucial element in a widely used measure of fertility impact, namely the number of births averted. The latter estimate is obtained by subtracting observed fertility (i.e. with the programme) from potential fertility (i.e. without the programme) and by multiplying this difference by the population size. The concept of potential fertility, as proposed by the United Nations expert groups, is vital for evaluation methodologies because the difference between potential and observed fertility provides an estimate of the fertility impact of the programme. The major source of variance in the results of evaluations of the fertility impact of programmes stems from differences in the definition and measurement of potential fertility.

Two principal types of potential fertility are defined (U.N. 1987):

(a) Gross potential fertility is defined as the fertility level that would prevail if all programme contraceptive users were to discontinue contracepting (i.e. without switching to non-programme sources), which implies that programme contraceptors will revert to natural fertility;

(b) Net potential fertility is defined as the fertility level that would prevail if there had never been a programme. This definition allows for the probability that many programme users would have obtained their supplies from non-programme sources in the absence of a programme. Such substitution tends to make net potential fertility lower than gross potential fertility. It also takes account of the demand for contraception created by the programme in the private sector. This is termed the catalytic effect. The combination of these two effects (substitution and

catalytic) is called "net substitution" which is the difference between the gross and net potential fertility. These relationships are clarified in figure 6.1.

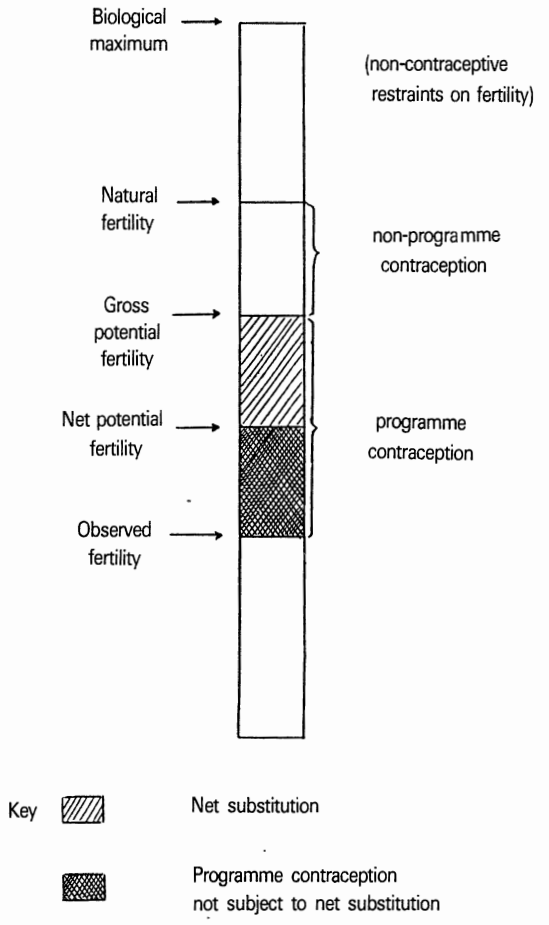
The concepts of gross and net potential fertility underlie the various techniques for estimating programme impact. In table 6.1, these techniques are listed. They fall into one of two main types: (a) population based procedures, such as trend analysis and standardization, which are based on macro-demographic data; and (b) acceptor-based procedures which utilize acceptor figures on methods and their continuation rates to estimate births averted.

Table 6.1. Types of potential fertility used and nature of different methodologies for evaluating the fertility impact of family planning programmes

Evaluation method	Type of potential fertility used	Based on population or acceptors
Trend analysis	Net	Population
Standardization approach	Gross	Population
Standard couple-years of protection	Net	Acceptors
Component projection	Gross	Acceptors
Regression analysis	Net	Population
Reproductive process analysis	Gross	Acceptors
Experiments design	Net	Population/ acceptors
Prevalence model	Gross	Population

As potential fertility is an inherently unobservable variable, it has to be estimated indirectly. Most of the technical problems in estimating gross potential fertility have been resolved. However, there is less agreement concerning the

Figure 6.1. Relationships between natural fertility and gross and net potential fertility in the general population.



Source : The concept of potential fertility in evaluation of the fertility impact of family planning programmes by John Bongaarts in U. N. (1987)

more important concept of net potential fertility. As a result, the demographic impact of programmes is likely to remain a controversial subject.

The ESCAP study on Impact and Efficiency of Family Planning Programmes (ESCAP, 1988) identified further conceptual inadequacies in applying the regression (areal) analysis methodology, one of the techniques listed above. Our poor understanding of fertility change resulted in limited applicability of the areal method.

At each stage of demographic transition, fertility varies with socio-economic advancement and responds differently to similar programme inputs. In addition, temporal and causal ordering among variable from cross-sectional data pose problems in the application of this model, particularly with regard to reciprocal causality. The difficulty of model specification and lack of appropriate variables available for inclusion in the model have eroded the utility of this potentially powerful technique. Data quality defects and the inability to satisfy all statistical assumptions required also create problems for utilizing this technique. Areal regression and the other techniques described in Manual IX should be further developed for assessing more objectively the impact of programmes on fertility.

Evaluation of Integrated programmes

The growing trend towards integrated health and family planning programmes, as pointed by seminar participants, has underlined the need to assess inputs carefully and to specify the family planning objectives of programmes.

In the development of evaluative methodologies for integrated programmes, the following four issues are of critical importance:

- Cause-sequence relationships implied in the integrated programmes are crucial to the success of these programmes and therefore require careful consideration.
- Synergistic effects implied by the integration process should be taken into account. For example, can integrated MCH and family planning services produce stronger motivation and thereby increase effective practice of contraception?
- Cost-effectiveness must be assessed as often it is claimed that integrated programmes are superior in this regard to vertical programmes. The problems of measuring costs of inputs and indicators of programme effects will continue to pose challenges to the evaluation methodologies in the coming decade.

- Evaluation of the impact and efficiency of each component programme in the integrated programme is needed. The results will provide critical management information for policy formulation, and programme planning and implementation. They may also provide ideas on how far the integration should go. For example, should family planning be integrated with MCH only or with all health programmes or development programmes. In view of the danger that family planning may become an insignificant routine or peripheral activity of MCH personnel, the consequences of integration may require special monitoring and assessment.

Data from sample surveys and special studies

Though service statistics are useful for certain monitoring and evaluative studies, they are inappropriate in assessing the overall impact of the programme on fertility contributions or mortality as well as the contributions of the non-programme factors.

Representative sample surveys such as the World Fertility Surveys, the Contraceptive Prevalence Surveys, and Demographic and Health Surveys, have been developed into important evaluative tools. Their value in Thailand is discussed in Chapter 5. They are flexible and can provide many types of data needed for policy formulation, management monitoring and evaluation, and particularly for assessment of effects and impact of different types of integrated programme.

In order to make surveys more effective as evaluative tools in MISs one should consider fresh sampling procedures such as multi-phase designs, panel studies and cluster sampling and rotating samples (used in labour force surveys), in addition to the usual multi-stage design. For example, if areal regression techniques and multi-level analysis are to be used, normal cluster sampling designs have to be modified.

Special studies which can provide quickly (within 2-4 months), and at a low cost, information for solving specific operational problems should be further promoted and developed to improve the qualitative aspects of programmes. Many of these types of studies, including in-depth investigation, have been found useful for programme operations and management, particularly at local or sub-regional levels.

Reliability and validity of measures

In view of the importance of the evaluation of family planning impact in integrated programmes, accurate, reliable and valid measurements of inputs,

processes, outputs and socio-economic/cultural factors are crucial. The effect of unreliable measures is to obscure or dilute real differences due to programme intervention efforts. An invalid measure, i.e. one that does not measure what it is intended and presumed to measure, should be avoided at all cost. These issues should be seriously considered in data collection and quality.

D. CONCLUSION AND RECOMMENDATIONS

The growing complexity of family planning programmes especially when they are integrated with MCH or other development programmes, has created new methodological issues and problems. Some of these are highlighted in the paper. They will continue to pose challenges to the researchers, programme managers and policy-makers whose joint efforts are needed to overcome or provide plausible solutions. Recognizing that considerable progress has been made in survey work and development of technical methods with attending analytic complexity, the paper concludes with the following recommendations on evaluation methodologies.

(1) The highest priority should given to the improvement and development of evaluation techniques that will take into account the fact that family planning programmes are increasingly being integrated with MCH programmes and other development activities;

(2) In view of the importance of potential fertility in estimating births averted or impact of the family planning programmes, the UNFPA should continue to support and refine work on clarification of the concept and measurement of potential fertility. Evaluation techniques utilizing potential fertility should be further developed for wider applications.

(3) In view of the expanded role that the private sectors will be playing in the future, private-sector data, supplemented by service statistics and sample survey data, should be gathered in as complete a form as possible. Data quality should be improved as it is vital to prevalence-based methods of measuring programme effects.

(4) More appropriate studies of programme inputs in relation to outputs/ effects should be conducted. There is a need to standardize important comparative concepts and strategic definitions such as efficiency, effectiveness, cost allocation, prevalence rate, and trained personnel.

(5) High priority should be given to the development of guidelines for the use of existing methods such as those from Manual IX and other recently developed evaluation techniques.

(6) More countries should conduct intensive studies of fertility determinants and experimental studies on management issues so that the results can improve policy formulation and programme planning and operation.

(7) Methods of studying effects of programmes and policies (other than family planning) that are designed to influence contraceptive use and fertility, should be encouraged as their applications may help understanding fertility behaviour and dynamics.

(8) Based on the needs of evaluation methods, ESCAP should implement a programme of training or workshops on evaluative research methodologies for middle level programme personnel so that they are equipped to utilize them for their programme improvement. These evaluation methods and techniques that are found useful should be widely disseminated and utilized by the ESCAP member countries.

Chapter 7

INTRA-SECTORAL INTEGRATION AND INTER SECTORAL CO-ORDINATION OF HEALTH AND FAMILY WELFARE PROGRAMMES IN INDIA

by G. Narayana

INTRODUCTION

Promotion of family planning in India to reduce population growth rates was a major objective of the First Plan. However, a separate department for family planning was constituted only in 1966. By that time, the health sector had its own vertical programmes, contrary to the recommendations in 1946 of the Health Survey and Development Committee, popularly known as the Bhore Committee, Vertical programmes, loosely interconnected at various points to coordinate activities, had their own goals and objectives, share of resources, technical skill requirements, training activities and monitoring systems. The 1959 Health Survey and Planning Committee recommended measures to strengthen each of the vertical programmes with product based organizational structures, and coordination committees at various levels. A major shift in thinking occurred during the Fourth Plan Period, with a new emphasis on integration of services. Concern for poor performance coupled with paucity of resources prompted the need for reorganization of service delivery systems. During the same period, some field experiments established the efficiency and effectiveness of such integrated service delivery strategies. Born out of subsequent deliberations was the concept of multi-purpose workers at community level and integrated structures above. Integration actually started in the early 1970s and was completed in the mid-1980s in most States. A concurrent Government strategy was to create a network of non-health organizations to assist the achievement of family planning and maternal-child health goals. The Ministries of Human Resource Development, of Labour, and of Social Welfare, together with NGOs were the major agencies selected for this purpose. The objectives of this paper, therefore, are to analyze the role of organization structure in accomplishing programme objectives, to examine the extent of integration achieved and to highlight the issues involved in such efforts.

Organization design refers to the way in which authority, responsibility and information are combined. Structures are not static but change in response to shifts in policies, strategies, environment, leadership, and also due to performance evaluation results. Changes may affect the number and types of units, span of control, task reorganization, rules and procedures, reallocation of

decision making authority, alteration in communication channels, mechanisms of control and reward, and coordination functions. Major organization changes are difficult to accomplish without a well elaborated strategy on management of change and may be counterproductive (Shortell and Kaluzny, 1983). Beneficial changes are more difficult to achieve in mechanistic organizations with bureaucratic and closed structures than in organic, dynamic, and open systems.

A. INTRA-SECTORAL INTEGRATION

A major emphasis in the reorganization of health services is on the conversion of uni-purpose paramedical workers into multi-purpose workers. More than 150,000 workers, both male and female, have received one month's training before reclassification as multi-purpose workers. To undertake such a gigantic task, all health and family welfare training centres were involved. However, their training capabilities are extremely limited, and, as a result, it has taken more than one and half decades to cover all functionaries.

The smallest unit in the health and family welfare organization, the subcentre, has one male and one female multi-purpose paramedical worker and covers about 5,000 population. The job responsibilities of the multi-purpose workers have been redefined. Female workers carry the main responsibility for maternal and child health and family planning, and male workers for all vertical health programmes such as malaria, epidemics, health education, and family planning. Family planning and child care activities are the main areas of overlap, though the contribution of male workers is relatively minor.

The merger of maternal and child health activities with family planning represents a continuation of long established trends. All female workers, even before integration, had received basic training to conduct deliveries, and to provide ante- and post-natal care. Since the family planning programme relies heavily on sterilizations and since many sterilization acceptors are post-partum cases, female workers have found integration desirable and acceptable. While the provision health services gives them professional satisfaction, the easy access to potential sterilization acceptors helps them achieve family planning targets.

Integration has different consequences for male workers. They have come from different streams, with wide variations in basic training, educational qualifications and emoluments. Reconciliation to the fact that they have become equals (in functions, if not in pay) after living with differences for many years is not always acceptable to them.

As a result male workers in many States have formed unions and reverted to their earlier unipurpose responsibilities. This implies a reduced workload for

each male worker and monitoring problems for supervisors. The Central government has not shown much interest in resolving these issues, perhaps because salaries of female workers are paid by the Centre while those of male workers come from State Government budgets. Naturally, the Centre would like the States to take the initiative, but the States wait for instructions from the Centre.

Male and female workers do not visit the field together, do not interact regularly, and do not help each other in programme implementation on a systematic basis. Sporadic collaboration exists for certain tasks, in particular sterilization and immunization camp activities. Targets are given and performance evaluation and activity monitoring are done on an individual basis. Since sterilization and immunization are priorities, female workers usually perform better than male workers. This disparity has raised the question of the relevance of male workers to the programmes.

Successful integration of programme activities at grass root level depends on several factors. One is the addition of new job responsibilities coupled with skill development through training. A second is the requirement to take a comprehensive look at health and family planning needs. This demands some understanding of inter-connectedness of activities and planning for services. A third factor involves functional integration through coordination between male and female workers. While integration processes have concentrated on the first factor, the second and the third have been neglected. Basic changes in target setting, monitoring and resource allocation systems are needed to make workers appreciate the inter-connectedness of programmes and to work as a team.

In four States of India, Uttar Pradesh, Madhya Pradesh, Bihar and Rajasthan, the Ministry of Health and Family Welfare has launched an experimental project to rectify some of the operational issues, (MOHFW, 1987). The main objectives of the project are to make the visits of workers more regular and predictable, to encourage team work and to combine training with supervision. Structural impediments and insufficient numbers of male workers has made it difficult to achieve the objectives fully. Because of budgetary constraints, State Governments are reluctant to recruit male workers. Capacities for training male workers are low and trained manpower has remained unemployed. As a result, for every two female workers, there is only one male worker at subcentre level, though the numbers should be equal.

Despite its many failings, the incomplete integration achieved thus far has brought about some positive benefits, particularly for supervisors and medical officers at Primary Health Centres (PHCs). The supervisor: worker ratio has been reduced from 10 to 6 and the geographical area to be covered has been reduced. First line supervisors, both men and women, are supervised by PHC medical officers. Thus the PHC headquarters has become the point of convergence for gender-based division of labour both at subcentre and first line supervisory levels.

Leadership by medical officers then is crucial for the success of integrated programmes (figure 7.1). However, a major gap has been observed between what the medical officers would like to do and what they have been prescribed to do. While they prefer to and actually spend considerable time on curative services, the organizational preference is for preventive and promotive health services, specially immunization and family planning. Structurally, up to PHC level, the activities appear integrated, though many discrepancies can be found in operational terms. In contrast, the district, state and central structures have remained unchanged or only partially reorganized.

District organization structure is largely programme based with less importance given to functional aspects such as management of finances, materials, personnel, facilities, and transport (figure 7.2). Since there is no uniform pattern of structure prescribed for districts, some States have retained the old structure while others have introduced partially integrated structures.

In all States, the Chief District Medical Officer is the head of the organization. Structural differences are conspicuous for all other officers below him. Three dominant patterns emerge. In States that have not undertaken reforms, each programme has a programme officer. As a result malaria, TB, leprosy, family welfare, public health and medical services are looked after by separate medical officers, one for each programme. Each programme has its own budgetary allocations, materials, vehicles and staff. Each medical officer supervises all health institutions in the district. None, however, has shared authority but only responsibilities. The span of control is large, the geographical area covered is unmanageable and coordination between programme officers is negligible.

In response to these defects, some States have modified these district structures. One model is to divide the geographical area into three parts and make one medical officer responsible for all programmes and health institutions in that area (model II). In all states following this model, two or three medical officers from the previous vertical programmes have been reassigned to take geographical responsibilities, while the programme officers of malaria, TB and leprosy have been left out. Each of these programme officers depend on the same work force for programme implementation and, as a result, the dual control of health institutions has continued.

Another variant (model III) has been to create a new sub- divisional tier between district and PHC, with a medical officer to control all programmes in each sub-division. The creation of separate offices as has been the case with the revenue department, is considered conducive for delegation of authority. But in practice authority has remained concentrated in the hands of Chief District Medical Officers. Even in this model, malaria, leprosy and TB officers have maintained their separate identity at district level.

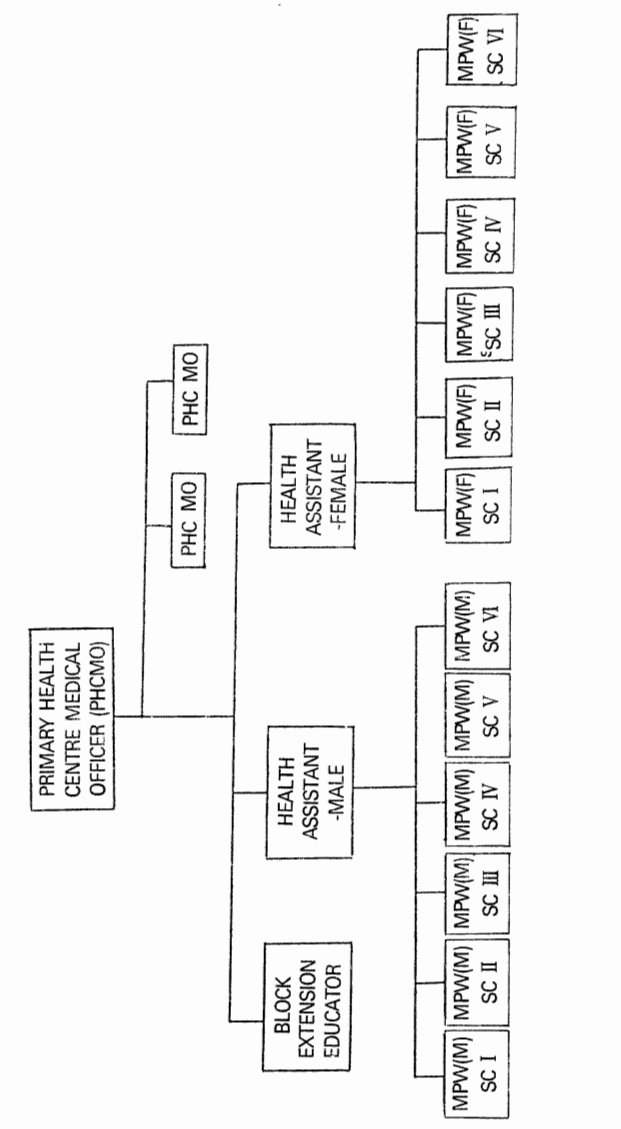
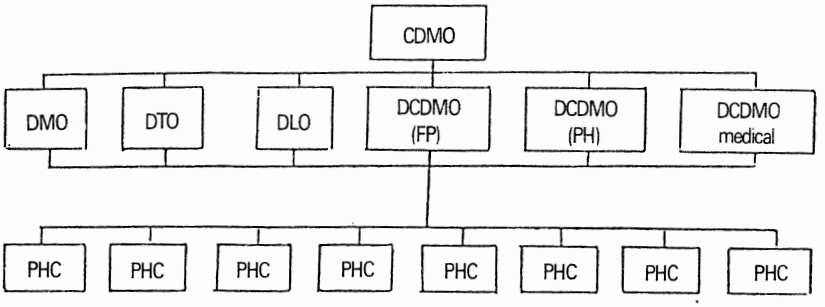


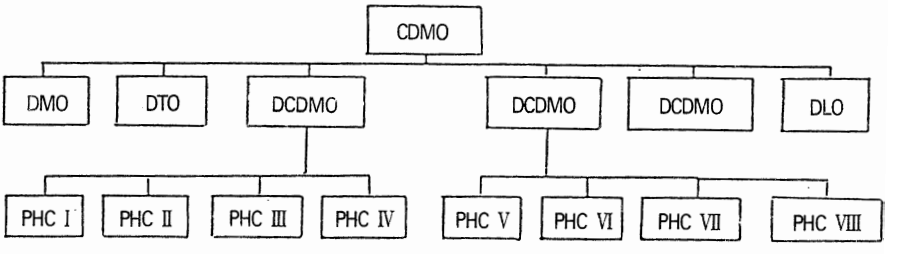
Figure 7.1. Integrated organizational structure of primary health centres

Figure 7.2. District health and family welfare organization

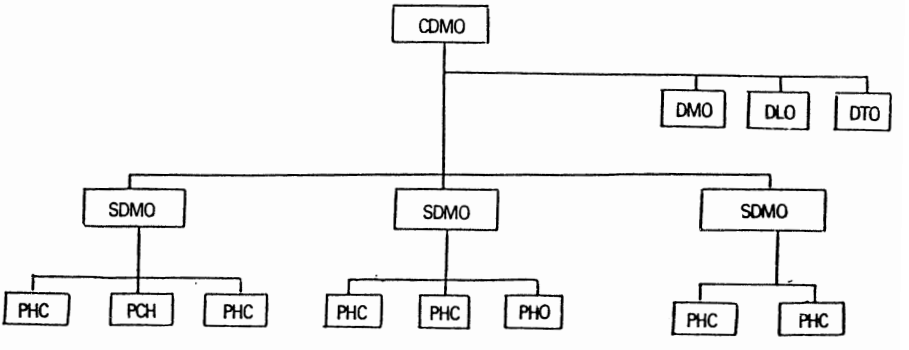
MODEL I



MODEL II



MODEL III



In both models, the structural changes introduced are partial and benefits from such changes are minimal. The span of control has been reduced but authority is not delegated. Integration brings a greater concentration of authority. As a result, some of the officers still evoke old loyalties among workers and supervisors.

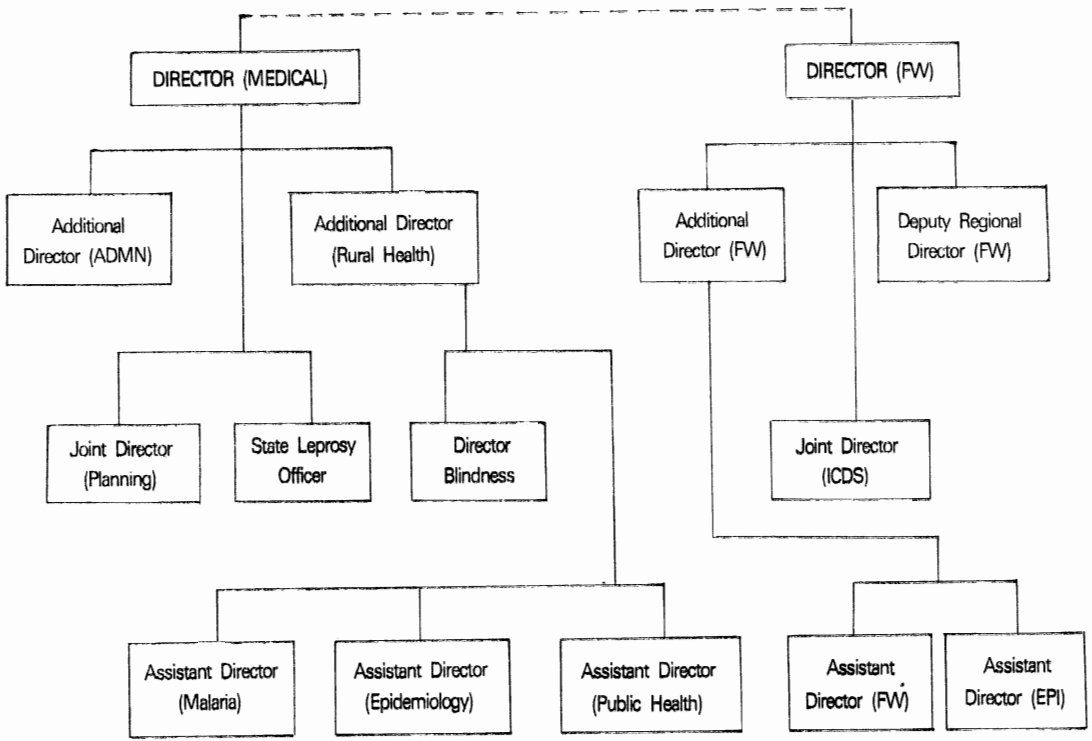
Monitoring systems and flow of information have remained largely unipurpose. In some States, where MIS experimentation has been done, integrated report formats based on the concept of key indicators have been designed and introduced. However, the vertical programme report formats have not been withdrawn. As a result, both types of report format move upwards in parallel. One of the main reasons for the inability to withdraw old formats is the presence of vertical programme officers, who would like to maintain their separate identity. In some cases, the vertical programme officers, particularly malaria officers, have instructed workers drawing salaries from the National Malaria Eradication Programme to work exclusively for this programme. Contradictory, and often conflicting, instructions are common.

There are various reasons for this type of behaviour by vertical programme officers. It is not merely partial integration that is responsible. Most of the vertical programme officers think that integration has boosted the family planning programme to the detriment of other programmes. Workers, supervisors and PHC medical officers spend most of their time and resources to motivate family planning acceptors and to provide services to them. While vertical programme officers are made responsible for achieving results, they do not have adequate resources. Another reason concerns dual control. Administratively, they are under the Chief District Medical Officer but technically, they report to programme officers at State level. They have to respond to pressure from both quarters.

The structure of State Health and Family Welfare Directorates, in contrast to the partial reform at district levels, has remained unchanged (figure 7.3). Though arrangements and size differ from one State to another, all States have retained their vertical programme officers, and their functions have remained the same. Like the States, the central government has retained the old structure.

Thus several problems with regard to integration of vertical programme persist. Half hearted attempt at reform, the belief that circulars alone are sufficient to induce change, and a concentration on least resistant areas have resulted in integrated structures at PHC level, partially integrated structures at district level, and vertical programme structures at State and Central levels. Integration has not been given a serious trial. Functional aspects have remained the same, leading to anomalies and conflicting situations. Some programmes have derived more benefit from integration than others, as a result of differential emphasis placed on programme activities through constant monitoring and evaluation. Undoubtedly, family planning and immunization programme activities have

Figure 7.3. Typical organization structure at state level



benefitted the most. But then, systematic implementation of integrated service delivery systems could have benefitted all programmes and could have maximized efficient use of scarce resources.

B. INTER-SECTORAL CO-ORDINATION

Inter-sectoral co-ordination in India is achieved for family planning in various ways. These include: involvement of administrative heads of districts; projects given to other ministries; and continuous interaction with select departments with similar objectives. These efforts are reviewed below.

Sporadic efforts

District administration is the most crucial unit with regard to the implementation of development programmes. Traditionally, the District Collector has played a central role in co-ordination of all development functions and in carrying out regulatory functions such as revenue collection and law and order. While some States continue with this, others have separated the development and regulatory functions. A new position of District Development Officer has been created to plan, monitor, and co-ordinate all development activities. Similarly there are new political systems created at district, block and village levels with elected representatives. While in some States, local bodies, particularly at district level, have been empowered, in others the decision making systems have not been decentralized.

In States with decentralized systems of decision making, the District Development Officer reports to the elected representatives. Achievement of targets set for various departments becomes the responsibiiity of District Development Officer in addition to district sectoral heads,. In such cases, health and family welfare officers at district level periodically submit performance reports and attend meetings of heads of all departments presided over by the District Development Officer. The performance of programmes such as family planning, which receive considerable emphasis from above, are deliberated seriously. Continuous review, identification of problem areas, and quick remedial actions are facilitated by the structures and systems. Mobilization of resources from other sectors becomes easy.

In cases where decentralized systems are not in operation, District Collectors are advised from time to time by the Health Secretaries, Chief Secretaries and also Chief Ministers tc achieve the targets of those programmes included in the Prime Minister's 20 Point Programme. As pressure to achieve targets mounts, the District Collectors call meetings of all departments, distribute targets, mobilize additional resources, announce new incentive packages and organize mass camps particularly for sterilization acceptors. Wherever the District

Collectors or the District Development Officers have shown a keen interest in the family planning programme, the target achievement figures have always reached a new peak. But all these efforts are sporadic and yield good results for only a short span of time. There is also usually no effort to maintain acceptable quality standards. Such uneven emphasis on family planning may cause long run damage to the programme.

ICDS : parallel systems

The Integrated Child Development Services (ICDS) scheme launched as part of the Ministry of Social and Women Welfare in 1975-76 is one of the programmes that has a close relationship with health and family welfare programme objectives. The ICDS scheme was started in 33 rural blocks and urban slums on an experimental basis and was later expanded to 869 additional blocks during the Sixth Plan period. Further expansion is envisaged during subsequent plan periods. The main objectives of the scheme are to provide: (1) supplementary nutrition; (2) immunization; (3) health check-ups: (4) referral services; (5) nutrition and health education; and (6) non-formal education to children below 6 years and to pregnant and nursing mothers (GOI: 1985). Except for non- formal education, all other components are common to the health and family welfare programmes.

The ICDS scheme is implemented through Anganwadi workers at village level supervised by first line supervisors and project officers. Anganwadi workers are actually volunteers who receive small honoraria. They visit households, run the Anganwadi Centres, conduct non-formal education classes and coordinate their activities with health personnel. While the Women's Development and Child Welfare Department implements ICDS schemes in most states, the health department has been given the responsibility in a few States. However, there are no studies conducted to show how these variations in implementation influence integration and coordination of different activities.

Evaluations of ICDS schemes in various States have reached the conclusion that achievements in the areas of supplementary nutrition and immunization services is highest (Sharma, 1987). Other services such as health checks, referrals and health education have not generated much enthusiasm among the target population, particularly the most underprivileged groups such as the Scheduled Castes and the Scheduled Tribes. Recognizing these problems, the Seventh Plan has concentrated on strengthening immunization, health checks, Vitamin 'A' prophylaxis, and IFA distribution, maintenance of the cold chain, and improvement in training programmes. Another area that has been identified for special attention is the coordination of activities between ICDS projects and health and family welfare departments at block level.

Women's development and child welfare departments require the cooperation of health personnel to carry out most of their activities, particularly immunization services. This calls for coordination of activities of Anganwadi workers, male and female health workers, and PHC medical officers. This can be achieved only when activity planning based on certain common goals is done for all these workers. For instance, immunization camps should be planned in such a way that the date and venue is convenient to both health and ICDS personnel. Advance information should be made available to all for necessary action. So far, such coordination is minimal. Anganwadi workers, however, do help health workers to conduct immunization and sterilization camps and also in motivating sterilization cases. In most States, the family planning targets are also given to Anganwadi workers.

Project tied co-ordination

From time to time the Ministry of Health and Family Welfare launches special projects, usually with financial assistance from international agencies. The activities flowing from the projects are based on specific objectives and run for a limited period of time. Continuity in such efforts depends on extension of old projects or launching of new projects. The involved ministries do not often carry on the work after the project period nor are new strategies evolved for long term association. The two ministries most concerned are the Labour Ministry and the Ministry of Human Resource Development.

Health care has always formed part of labour welfare measures. Major industrial units have established well equipped hospitals for their employees. Some like TISCO and UPASI have launched family planning programmes on a large scale much before Government sponsored projects. These efforts covered only a few industrial units which are large in size with a high turnover. Many medium and small scale industries have neither attempted to include family planning nor provide MCH services as part of labour welfare measures. ILO, with its extended definition of labour welfare covering not only workers but their families and the social environment, has launched several projects dealing with family welfare. Organizational resources and captive workers are assets in the implementation of projects related to family planning and MCH. In transitional societies the influence of workers extends beyond the industrial units in which they are working. The close ties that they maintain with rural kin roups help to extend innovations. The involvement of the labour department in family welfare in Andhra Pradesh has yielded good results with a minimal amount of additional resources. All officers of the department have been asked to work as trainers to personnel managers, trade union leaders, and informal leaders among workers. These trainees in turn acted as trainers for workers. All industrial units with more than 100 workers in six districts have been covered by the project.

The project has generated considerable amount of interest and enthusiasm among workers. In some units, the workers organized themselves into small groups, have spread the message of family welfare to selected villages. In some cases, industrial units have adopted villages to provide family welfare messages and services. The family planning facilities, particularly for sterilization operations, in major industrial units have been made available to small units not having such facilities. All these measures indicate the latent need and interest. Even more important is the recognition accorded to the fact that family planning and MCH activities are part of labour welfare measures. But projects of this nature suffer from some serious shortcomings. They tend to be replicas of programmes already implemented by the Ministry of Health and Family Welfare with excessive emphasis on sterilization operations. Organized workers with high literacy rates and income levels are largely self motivated persons for permanent methods. Efforts to concentrate on non-terminal methods would have been more useful. In some cases the health and family welfare personnel have taken the project efforts as substitutes for their own work, rather than supplements. As a result, they have found easy and less time consuming ways of target achievement (Narayana, 1990).

The Ministry of Human Resource Development is another agency that has been involved in population education activities by the Ministry of Health and Family Welfare. Though a Population Education Unit was established as part of the National Council for Education Research and Training in 1971, it was only after a decade that the functions of this unit were clearly spelled out and a major project known as National Population Education Project was started. The main aim of the project has been to develop rational and responsible attitudes regarding population issues among students and teachers. About 26 States and Union Territories have been involved in project implementation. State Councils for Education Research and Training acted as focal points at State level. Preparation of curricula for school students, training of teachers and also research studies are the major components of the project. Topics covered as part of the syllabus include population growth and dynamics, population and development, biological factors and family, population and environment, and health and nutrition.

Evaluation studies conducted at the end of the project period have highlighted the achievements (Kanitkar, Verma, Ramesh, 1990). There are major variations in terms of performance among States. In some States population education topics have been included in school curricula; in others, these remain as separate entities. Students with greater exposure to mass media have higher levels of awareness than students without such exposure. Only a small proportion of all teachers were trained in population education. The contents of population education were prepared by staff who had insufficient expertise in the subject and, as a result, several discrepancies and stereotypes have been noticed. Population Education Cells have not maintained their links with other

agencies working in the same field, particularly Health and Family Welfare Directorates.

The potential of the Human Resource Development in conducting population education among the younger generation is not disputed. Implementation mechanisms, however, require careful scrutiny. There is a need to evolve long term strategies to keep population education as an on going activity after the project period. Coordination between the Health and Family Welfare Ministry, the Education Ministry, and other agencies also needs to be improved.

NGOs - variety of experiences

A bewildering variety of non-government organizations (NGOs) differ in size, coverage, objectives, social origins, financial resources, organizational managements, and ideologies. Estimates of the total number of NGOs range from 10,000 to 20,000, of which about 400 specialize in health and family welfare. Not much is known about these organizations except for a few highly successful ones. For the purposes of this paper, they can be divided into three major categories: (1) NGOs dealing with one particular activity; (2) NGOs combining family planning and MCH; and (3) NGOs concerned with social and economic development of which MCH and family planning forms a part. Unlike Government organizations, NGOs are neither rigid about the areas of coverage not about their organization structures. Many shift the focus of their activities according funds available and donor preferences. An analysis of these three types organizations is made below.

Many unipurpose NGOs aim to prove a particular point of view. For instance, some have launched specific projects to disprove the proposition that oral contraception will not be acceptable in rural areas. NGOs such as Howrah Community Based Distribution Project, KM College Hospital Project in Karnataka and CBD Project in Varanasi have successfully demonstrated that oral contraceptive use can be improved considerably if certain local specific strategies are followed (Mallick and Seal, 1982, Nayak, 1983, Tewari et al, 1982). These strategies include streamlined supply systems, volunteers catering to small segments of population, effective follow-up service and persuasion through interpersonal contacts.

A second set of NGOs have dealt with both family welfare and MCH activities. Two vital differences are noticeable. While some organizations have field staff to provide health care, others have relied only on clinic based services. For instance, Parivar Sewa Samstha has a wide network of clinics, and provides spacing and terminal family planning methods, medical termination of pregnancy, and maternal and child health care (Sohani, 1987). Emphasis is on counselling by medical professionals, quality services and follow up. More than one third of

users of Parivar Sewa Samstha learn about the service from newspapers, magazines, bill boards and kiosks. Persons visiting clinics receive advice and information on all aspects of maternal child health and family planning. Integrated, comprehensive, reliable and safe services are the main reasons for high performance levels.

The KEM Hospital Rural Health Project, in contrast, is an outreach programme with the same structures as that of Government health and family welfare programmes (Raleigh, 1987). Village health guides, male and female workers, and medical officers are in place exactly parallel to Government norms. The main difference lies in management practices and also programme implementation strategies. A greater emphasis is given to MCH activities, particularly antenatal, natal and postnatal care than in the government programme. Other health measures such as malnutrition and diarrhoea management also receive considerable attention. The subject of family planning has been approached through health care, a strategy in contrast to Government health care systems where family planning is accorded greater priority than MCH activities.

A few voluntary organizations have combined economic development with family planning and health care services. The canvass becomes wider and the management of inputs becomes more complex. Such an approach requires careful planning at micro level. The Rural Unit for Health and Social Affairs (RUHSA) in Tamil Nadu has health and family welfare, adult education, vocational training and agricultural development as its main activities (Sohani, 1987). Family care volunteers are selected from the community and given training in health and family planning. Male workers look after development activities. As a result, infant mortality rate has fallen from 116 to around 65, the death rate from 15 to 8, and the birth rate from 36 to 24 in a 6-year span.

Banwasi Sewa Ashram, unlike RUHSA, which right from the beginning combined health and economic development, began its activities with an emphasis on irrigation and agricultural technologies in drought prone Eastern Uttar Pradesh (Raleigh, 1987). Creation of people's organizations, selection and training of rural development technicians and demonstration farms were its main activities. Education, health and family planning were added later. The village based primary health care programme has three main organizational levels: the local volunteers trained in preventive and promotive health; village doctors with service centres; and specialized medical institutions. Development and health activities run parallel to one another with a common leadership at Central level.

Voluntary agencies have certain advantages over government organizations. Most NGOs cater to a limited population in a small geographical area. Their scope and scale of action is flexible. They also concentrate on micro level strategies specific to the area concerned. Planning and resource allocation

is based on need. The number of organization levels is limited, the flow of information is fast and more importance is given to qualitative aspects than quantitative achievements. These features facilitate decision making. For various reasons, voluntary organizations achieve better support from communities and involve volunteers selected from the community with minimal costs to the organization. However, only a few NGOs follow innovative approaches and their number has become static. The Ministry of Health and Family Welfare has yet to evolve a strategy to overcome this problem.

C. INTEGRATION AND CO-ORDINATION: IMPLICATIONS FOR MONITORING AND EVALUATION

Integration of health and family welfare programmes in India remains incomplete. Even where integration has taken place, work practices do not reflect this. There are two reasons for this resistance to change.

Unchanged structures at middle and top levels is a major constraint. Programme officers like to retain their identity and often resort to instructions that favour vertical structures. This, more often than not, has caused considerable confusion. Dual control and authority still continues. Added to this defect are problems of fragmented functional management. Budgetary controls down to village level are based on old vertical programmes. This feature has acted as a strong barrier to integration. Anomalies in pay structures need to be rectified, resource allocation has to be based on integrated programme structures and authority has to be delegated before integration is made effective.

The second reason for the failure of integration concerns priorities. Family planning and immunization are two priority areas, because of their inclusion in the Prime Minister's 20 Point Programme. Quantified targets are given to all organizational levels and to all programmes. At implementation level, these become individual targets. Though all programmes have targets, achievements are reviewed only for family planning and immunizations. Monitoring, therefore, becomes narrow and an integrated perspective is lost. Potential acceptors are sought till the targets are fulfilled and the needs of family units are neglected. The importance given to family planning and immunization has led to downgrading of other health programmes; certain types of health workers have become less useful for programme implementation; and the interconnected nature of activities is neither understood nor tried in practice.

Successful integration would have created a demand for change, particularly in management information systems. Since the health and family welfare organization is a highly centralized agency, retention of vertical programme structures at top levels have successfully prevented attempts to change systems at district and level and below. In fact, old systems often exert

pressure on integrated aspects. If integration is the desired objective, then the strategy should be to implement it at all levels and to change resource and information systems to suit the new structural arrangements.

Inter-sectoral coordination attempted so far in India is a limited and time bound exercise. Decentralized district administration with an emphasis on multi-level planning has more effective coordination mechanisms than centralized administration. However, implementation of programmes is sporadic and key programme elements are given more prominence to the neglect of others. Programme monitoring is based on limited and isolated indicators. A change in these practices calls for a change in organizational culture that could only be achieved through human resource development efforts. Strategic planning and management are required to involve other departments. Projects implemented in Labour and Education Ministries provide valuable insights to meet such requirements. Failure to coordinate activities on a long term basis is the major weakness. Rigid boundary definitions, hierarchical status considerations, scarce resources, and absence of strategic measures come into the picture. But then, achievement of objectives depends on how organizations overcome these weaknesses and convert them into strengths.

Monitoring and evaluation systems can be effective only when all programmes are given equal importance and also when integrated systems are designed at all levels. Supervisors and managers should learn to look at interrelationships between programmes and performance indicators. The family as an unit for service delivery should replace programme or activity based requirements. Managers require skills to interpret data and also skills to take decisions. This calls for delegation of authority from top to bottom and decentralized systems. Organizations achieve results only when inputs, processes, and outputs are given equal emphasis and are closely monitored.

Acknowledgments

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Chapter 8

MANAGEMENT INFORMATION SYSTEM FOR FAMILY PLANNING, ITS LINKAGES WITH MATERNAL AND CHILD HEALTH PROGRAMMES: AN NGO'S PERSPECTIVE

by Mehtab S. Karim

INTRODUCTION

An information system is an essential component of any Primary Health Care (PHC) System. One of the main strengths of a Management Information System (MIS) is its capacity for surveillance that gives it the power for universal coverage, including focussing on those in need and at risk, especially mothers and children. MIS supports surveillance as well as other managerial functions of a programme. As such, it plays a critical role in the establishment, management and monitoring of the programme. The 1987 World Health Organization (WHO) Report acknowledges the fact that "the main constraint reported by all countries is inadequate information support for the managerial process". Thus, improving the efficiency of the management of available resources is one way of increasing the impact of a programme.

The main aim of the chapter is to assess MISs as a tool to manage and improve an integrated family planning and MCH programme. For the purpose, we have drawn examples from the MIS which has been in operation for the past three years in various field sites in Karachi, Pakistan where PHC programmes have been established by the Department of Community Health Sciences at the Aga Khan University (CHS/AKU).

Pakistan's family planning programme is long established and will be completing its 25th year in July 1990. The programme, however, has lagged behind in many areas and has been criticized for its ineffectiveness at reaching the people that it is supposed to serve (Rukunuddin, 1989; Karim, 1989; The World Bank 1989).

During the 1980s, several NGOs in Pakistan initiated innovative family planning programmes which have shown considerable impact on contraceptive use (Fazil, 1989). CHS/AKU's PHC initiative has also had some impact on nutritional status of children and contraceptive use among women (Karim, Midhet and Bryant, 1988). While most programmes being managed by NGOs are

vertical (mainly family planning activities), the PHC programme of CHS/AKU considers provision of family planning as one of the components of the PHC system. Besides, CHS/AKU programmes also have a strong MIS component, unlike most other NGO programmes.

Although Pakistan signed the Alma Ata Declaration of Health for All by the year 2000, it has yet to implement a functional PHC programme at national level. However, the new National Health Policy that will be implemented in 1990 aims, for the first time, to implement an integrated FP/MCH/PHC programme at the village and community level, in which an integrated MIS can play a very vital role. Thus the CHS/AKU experience is extremely relevant for national policy.

A. INFORMATION SYSTEM OF THE URBAN PHC PROGRAMME OF AGA KHAN UNIVERSITY

The squatter settlements of Karachi contain over three million people (about 40 per cent of Karachi's population) living in more than 400 communities. CHS/AKU has established five field sites in Karachi's squatter settlements, one in a lower middle class area, and another one on an island off the coast of Karachi. These field sites have been established to serve as prototypes for service, teaching and research with a provision for large scale PHC programme implementation in Pakistan.

Our approach to PHC is intended to develop simple, effective and affordable systems, but they incorporate concepts that are rigorously derived, such as:

- PHC should achieve universal coverage of a defined population;
- the services should be effective in addressing the dominant problems of the community;
- services should focuss on those who are most vulnerable and most in need;
- communities should participate in the planning, management, and evaluation of the health care programmes.

To achieve these objectives, a three tier system is employed:

- Community Health Workers (CHWs) are recruited from and trained in the community. Each CHW is assigned a minimum of 150 households, which are visited on a periodic basis, usually once a month.

- These CHWs are supervised by Lady Health Visitors (LHVs) or Community Health Nurses (CHNs). The LHVs/CHNs regularly review the work of the CHWs and summarize their findings.
- LHVs/CHNs are in turn supervised by Community Health Doctors (CHDs), who review the performance of the entire PHC team and formulate action plans using data collected from the field.

This three tier system is designed as a pyramid, with its base firmly planted in the community. It has the capacity for surveillance of all members of the community so that individuals, families, and communities who are ill or at risk can be identified and appropriate interventions undertaken.

The target population served by the CHS/AKU field sites range between 10,000 to 20,000 with emphasis on children less than five years and married women of childbearing ages. The Urban PHC project was initiated in 1986 using the integrated approach. However, family planning services were not provided till 1988, by which time the programme had acquired the confidence of the community.

The development of the MIS for the Urban Primary Health Care Programme began in 1987. Additional instruments are still being developed while the old ones are being refined to meet the changing needs of the programme. The MIS is designed to serve several purposes:

a. to guide the CHWs as to where they should focus their efforts on mothers and children;
b. to indicate to the supervising health professionals the extent of coverage of the population and which components of the programme are effective and which are not;
c. to help show the community what the needs are, how well these needs are being met and to involve them in decisions that follow;
d. to indicate both costs and impact, which have strong implications for policy making; and
e. to serve as a continuous guide to CHS/AKU, which is committed to the principles of equity in health care.

Most of the information generated through the MIS is recorded and aggregated by the CHWs and thus the crucial focus in developing the MIS has been the interface between the CHWs and the community.

Thirty one indicators are generated from the data collected on a routine basis (see table 1). The ***process*** indicators, measuring activities performed by the workers, are generated monthly; ***outcome*** indicators, measuring the outcomes of activities performed, are generated quarterly; and the impact indicators are generated yearly. Cost figures are also collected as an early step towards cost-effectiveness analysis.

A quick count survey is the first activity performed at a field site after its selection. Each of the structures and the families living within the structure in the area are counted and given an identification number. An in-depth survey is then carried out using a sample of the families in the area to collect baseline demographic and health related information about the target population. These data are later used as a benchmark for evaluation purposes.

After completion of the baseline survey, the CHWs start visiting the families on a routine basis. Every family is visited by the CHW at least once a month. The high risk families are visited more frequently. The data needed to generate the indicators listed in table 1 are collected by the CHWs and the CHNs during their home visits.

The CHW maintains two types of records: a family folder for each family she visits; and a growth card for each under five child in these families. In addition, a maternal health card and a pregnant women's register have been developed for use by the CHWs and the LHV/CHNs to record information that are used to provide antenatal and postnatal care to women.

The CHWs use a daily activity report form to record information on activities performed by them during home visits. This report is also used as a tally sheet and a supervisory tool by the CHNs. TBA Reporting Forms are used to monitor the performance of the traditional birth attendants who have been trained by the programme.

Death forms are filled for all reported deaths in the registered areas by the nurses and the doctors. This information is used by the PHC team to discuss preventable deaths and to identify risk factors.

CHWs motivate eligible couples to practice family planning and record the information on whether a particular women is practicing family planning. The contraceptive prevalence rate is then calculated every quarter using these data.

Finally, clinical records are maintained by the clinical assistant to record visits of patients, disease cases diagnosed, and the drugs dispensed.

The PHC team aggregates the information collected by the CHWs and the clinic staff at the end of every month. This report is then sent to the Central MIS

Table 8.1. List of indicators collected through MIS of CHS/AKU

Information	Frequency
Registered families	Quarterly
Families monitored	Quarterly
CHILDREN UNDER AGE FIVE :	
—Children by age category	Quarterly (<3, 3—<5)
—Children weighed	Monthly
—Weight change	Monthly (for<3) and Quarterly (for 3—5)
—Immunization status	Quarterly
—Diarrhoea	Quarterly
—ORS given to child who had diarrhoea	Quarterly
TOTAL MARRIED WOMEN(15-49 years) :	
—Married women	Quarterly
—Pregnant women	Quarterly
—Immunization status	Quarterly
—Family planning	Quarterly
—Total women delivered	Quarterly
TRAINED BIRTH ATTENDANTS :	
—Total trained TBAs	Quarterly
—Dai reporting deliveries	Quarterly
—Delivery reported	Quarterly
—Delivery reported<48 hrs.	Quarterly
VITAL EVENTS :	
—Migration IN	Quarterly
OUT	Quarterly
—Births	Quarterly
—Deaths	Quarterly
CLINICAL :	
—Patients seen by age category	Monthly
—Morbidity pattern	Monthly
—Drug consumption	Monthly
OTHER MANAGEMENT INDICATORS :	
—Supervisory visits	Quarterly
—Continuing education	Quarterly
RATES :	
—Crude birth rate	Annually
—Crude death rate	Annually
—Infant child death rate	Annually
—Causes of deaths	Annually
—Cost	Annually
Total : Monthly	25
Quarterly	22
Annually	05
	32

Unit where a consolidated monthly/quarterly report for the Urban PHC programme is prepared.

All CHWs are given training after recruitment. The training includes a few lessons on the data collection instruments and the information system as a whole. Forms that are routinely filled by the CHWs are manually checked for completeness, accuracy and consistency by the LHV, CHN or the information assistant. At the end of the day, the CHW turns in the Family Folder to the supervisor (LHV/CHN) for cross checking. Queries are answered and problems encountered are discussed. The Community Health Doctor (CHD) also checks information collected by CHWs and CHNs on a periodical basis. The MIS unit checks for consistency the information it receives from the field.

Computers are used to assimilate and generate information both for monitoring and evaluating the PHC programme. Information sent to the central MIS unit is already aggregated by the staff at the field sites. A microcomputer is used to further consolidate and analyze the information by field site. However, special care is taken to see that the system does not become computer dependent.

The main strengths of the MIS may be summarized as follows:

- it helps early identification of high risk persons and families;
- it quantifies and summarizes activities performed by the different level of workers; and
- it enables quick decision making at each tier of the programme.

Its major weaknesses are:

- it is too time consuming for the service providers;
- currently there is under-reporting of vital events especially births; however, the introduction of antenatal card is expected to help hoped that this follow-up will reduce the problem of under-reporting;
- despite identification of mothers and children as being at risk, interventions may not protect them effectively;
- MIS collects some information not used by those providing the services and thus providers do not recognize their utility;

B. EXAMPLE FROM CHANESAR GOTH: A SQUATTER SETTLEMENT IN KARACHI CITY

Chanesar Goth is located in the centre of Karachi city. It was originally a village established about 200 years earlier. With the expansion of Karachi it has been incorporated in the city but remains a squatter settlement. Today it has a population of approximately 11,000 people, mostly belonging to lower socio-economic strata and lacking many civic amenities.

For the proper functioning of any health programme, the management of its health information system through proper surveillance is almost a prerequisite. This system acts as the backbone for monitoring and evaluating the programme. Therefore, to have an effective PHC programme, a well-managed MIS was developed for Chanesar Goth which started functioning in 1987.

During the initial visit, each CHW contacts women in the household, informing them about the PHC programme. For those households which agree to join, the CHW completes the family folder and the child health status card; if there is any pregnant woman in the house, the pregnancy health status card is also completed. Revisits to every family are made by the CHW on a monthly basis. Those families requiring special attention, for instance families which have one or more children with Grade III and/or Grade II malnutrition or 'high' risk pregnant females, are visited twice a month.

During each visit to a family, the CHW discusses with the mother, health related issues and assesses whether she has adequate knowledge of:

- Breast-feeding and weaning practices, proper diet for malnourished children and pregnant mothers.
- Personal and environmental hygiene - bathing, cleanliness of the kitchen area as well as that of the houses and outside lane.
- Immunization requirements of children under five and of pregnant women and maternal care practices.
- Oral-rehydration therapy, including method of preparing ORS both home-made and packets, when, for how long and the amount to be given.
- Basic care of a sick child - e.g. how to manage a child with fever and other diseases.
- Family planning and use of contraceptives.

The child health status card, and if required the pregnancy health status card, are updated at each visit to the family.

The CHN/LHV sees that everything is in order and after completing the necessary work of entering data, organizes the family folders in serial order according to the household number. She also ensures that the results are discussed at the weekly meeting of the field staff and necessary plan of action formulated, and that information collected can be forwarded to the CHS/AKU for computerization.

The Field Director plays mainly a supervisory role in the MIS. Initially he/she teaches management of the MIS to the PHC team and later works alongside the team in the early implementation of the system, including supervising MIS activities on a weekly basis. The Field Director also monitors the health status profiles of the women and children under the surveillance of each CHW. The necessary actions to be taken are discussed at the meetings of the field staff at regular intervals. Thus, efforts have been made to make the MIS: simple and not too time consuming; specific to collection of data that are relevant to decision making process; and useful in decision making at all tiers of the programme.

The results of the baseline survey conducted in 1985 and a recent survey conducted in 1989 show considerable changes in contraceptive prevalence rate among currently married non- pregnant women, from about 8 per cent in 1985 to 20 per cent in 1989. It may be noted that this increase has occurred only a year after family planning activities were initiated. Substantial changes in demographic indicators are also reported. The declines in the crude birth rate and the pregnancy rate are directly associated with the increase in contraceptive use as well as improvements in pregnancy outcomes. This impact may be attributed to the emphasis on personal contacts between the workers and the clients, in which MIS plays a key role.

C. CONCLUSIONS

The Management Information System of the Urban Primary Health Care Programme at CHS/AKU is very elaborate as some of the information collected are meant for research purposes. However, we are involved in developing a much simpler information system for the PHC programme on Baba Island outside Karachi city, in rural areas of Thatta district and in mountainous Northern Areas of Pakistan. Lessons learned from our elaborate system are being used in developing the simpler systems that will generate only a few essential indicators. These minimal information systems are being developed keeping in mind the possibilities of replication at the national level.

The Urban PHC Programme of CHS/AKU has the advantage of having literate, salaried full time workers who can maintain elaborate records. However, MIS has to be modified where the field workers are volunteers and are illiterate.

The MIS of the Chitral PHC Programme in Northern Pakistan has been developed keeping the nature of work and literacy level of CHWs in mind. This system was developed in consultation with the CHWs during the training of the first batch of workers. It is very simple, but generates all the information required to run the system in an effective manner. For example, one of the records maintained by these workers is a morbidity report form which is a one page tally sheet. At the top of the form, sex and ages are written, while on the right side, names of the five common diseases and referrals are given. The CHWs put a mark (x) in the corresponding square when a patient is seen or referred. As the CHWs are illiterate, they have to learn the whole format by heart during the training.

Similar modifications can be made in MIS for illiterate or semi-literate workers in villages. The MIS presently in place in the CHS/AKU field sites has demonstrated that an integrated MCH/FP programme not only generates some very useful data for programme monitoring but that it also improves the health status of mothers and children on the one hand and promotes family planning on the other hand.

CHAPTER 9

THE EXPERIMENTAL HEALTH MANAGEMENT INFORMATION SYSTEM (FAMILY-BASED APPROACH)

by M.R. Chandrakapure and S.S. Narvekar***

BACKGROUND

Maharashtra, India first introduced a management information system (MIS) in 1981. The entire system was designed to suit the information needs of the state for the implementation of the national health programmes. Emphasis was on accuracy, completeness and timeliness of information for which a courier system was introduced. Because of the courier system and an inflexible time schedule, information from all reporting units could be obtained by the tenth day of every month at the state headquarters. The information was analyzed by each programme officer and timely feedback was given to the peripheral units. This arrangement helped the state to implement programmes and also to improve efficiency.

However, during the implementation of this health MIS, the Directorate of Health Services identified certain weak areas. The areas of weaknesses are:

(1) loss of valuable work time in maintaining voluminous records, registers and preparation of reports;

(2) incompleteness of information, owing to inadequate coverage of services to the beneficiaries; and

(3) inadequate utilization of information by programme managers at different levels, mainly due to their lack of appreciation of the information generated;

(4) inadequate supervision and questionable data quality.

To overcome these drawbacks, the Directorate of Health services, started to streamline its existing information system.

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* Project Director, Cum Director of Health Services, Bombay, India

** Project Co-ordinator, Cum Assistant Director of Health Service, Bombay, India.

In 1987, the Population Division of the ESCAP showed keen interest and approached the Governments of India and of Maharashtra to assist in streamlining the existing HMIS. It was then decided to undertake a pilot study in a block having around 200,000 population. Dindori block in Nashik district was selected for the study.

The project aims to rationalize the existing voluminous record system and to shift the emphasis from a performance oriented approach to a beneficiary oriented approach, thus ensuring total coverage of health care to each and every member of the community.

A. SETTING

It was decided to select one block (Tehsil) from the district which contains both tribal and rural populations and has a comparatively well developed health infrastructure. Nashik district comprises thirteen Blocks with 1742 inhabited villages and 10 Municipal Urban towns. The district covers an area of 15,530.0 square kilometre and had a population of 2,991,739 in 1981, of whom 60 per cent are classified as rural.

Nashik has an average density of 193 persons per square kilometre. This is somewhat lower than the State's average density of 204 persons per square kilometer. Within the district, however, there is wide variation.

Nearby half (44.4 per cent) of the total population in the district is literate compared to the State average literacy rate of 47.2 per cent. The literacy rates of the two sexes differ sharply with 56.1 per cent amongst males and 31.9 per cent in females. Nearly all villages (95.6 per cent) now have primary schools. A rather lower proportion of villages (67.5 per cent) have electricity.

Within Nashik district, Dindori block was selected for the experiment. The locations of the district and the block are shown in the map (figure 9.1). As may be seen in table 9.1, Dindori block contains a such higher percentage of tribal population and has a lower level of literacy than the district as a whole. The availability of basic amenities in the block however, is quite favourable, particularly with regard to village electrification. Details of the health and family planning staff in Dindori are given in Table 9.2 and the location of health institutions is shown in the second map (figure 9.2).

Table 9.1 Comparison of selected characteristics in Nashik district and Dindori block

Indicators	Nashik District	Dindori Block
i) Percentage of Total Population of belonging to scheduled tribes	23.4	49.3
ii) Growth Rate	+26.4	+19.8
iii) Literacy Rate	44.4	24.1
iv) Sex Ratio (female per 1,000 males)	937.0	966.0

Table 9.2. Profile of the project area - Dindori

Population (1981 census)	164,478
As per survey carried out before launching the project	188,285 (14.5% increase)
No. of villages	132
Health Institutions	
Sub Centres	56
PHCs	8
Rural Hospitals	2
Health manpower	
Multi-purpose Workers	
Male	26
Female	64
Health Assistants	
Male	16
Female	16
Medical Officers	13
Anganwadi Workers	150

B. PREPARATION FOR LAUNCHING THE TEST RUN

Activities

After detailed discussions of the project with ESCAP and Government of India officials, the following activities were identified.

(1) Review the existing service statistics procedures and data needs required to monitor and evaluate implementation of the health and family welfare programme.

(2) Design a family health card, keeping in view the need for complete coverage of every beneficiary.

(3) Pretest family health cards in the field, finalize and introduce family health cards.

(4) Prepare training manuals for workers, supervisors and Medical Officers.

The activities outlined above were carried out before launching the test run.

Family health card

The family health card has three basic components: information about each family and its members; services provided to each member of the family; and follow up information for 24 months.

There is a scope for updating the entries periodically. After pretesting the card in the field, necessary corrections suggested by the field supervisors were incorporated. The family health card was made as simple as possible, easy to understand and to fill in, keeping in mind health workers' intellectual levels and capabilities. (See annex 9.1 for design and details).

Training module

A training module was designed. The module comprised: objectives of the project; guidelines to fill in the family health card after the delivery of services; methodology to carry out the baseline survey; general guidelines to maintain family based record system; methodology to compute data on the services rendered to each family, (use of tally sheet); and standard definitions used for the national health programmes.

The training manual was prepared in such a way that it can be useful for supervisors and Medical Officers also. Sufficient copies of the training manuals

were printed and distributed to all the workers, supervisors, medical officers and District level key trainers/supervisors before the actual training sessions.

C. TEST RUN PROCESS

Training

In meetings with the District level officers and members of the District training team, a strategy for the training of health workers, supervisors and medical officers was planned. In order to make the training more effective, a one-day workshop of District level supervisory staff was arranged. Sixteen members were selected as trainers. Four District level medical officers were chosen to work as supervisors to oversee the training programme and project test run.

These selected personnel were given an intensive two day orientation about the project by the State level project coordinators. On completion of the trainers' training, a five day training schedule was prepared for the training of all multipurpose health workers, Primary Health Centre (PHC) level health supervisors and medical officers working in the eight PHCs of Dindori block. The training was conducted at the headquarters of the PHCs by a team of two trainers.

The training was spread over a period of five working days in two distinct phases. For the first three days class room teaching was held, during which the entire training module was explained to the workers and family health cards were filled in with the help of actual examples.

In the second phase, field oriented training took place. The workers were asked to carry out a baseline survey, to deliver services to the beneficiaries and then to record service activities on family health cards. Each worker was asked to fill in ten cards. These were verified in the field by the trainers as well as by the District level and State level project officers. Common omissions noticed during the field training were discussed with the staff and necessary corrections were made on the health cards.

The workers were also trained to retrieve data from health cards for preparing monthly returns. During the training period 101 paramedical workers, 11 medical officers and 20 district level supervisory staff were trained under the project. The entire training was supervised by State level project officers. An ESCAP representative was involved in planning and supervising the training at various levels.

Project implementation

As training of the staff under the project was completed by the end of September, it was decided to launch the project on 2 October 1988, on the auspicious day of the birth anniversary of Mahatma Gandhi. The baseline survey was started on 3 October. All houses in the project area were contacted within a period of 45 days. The health workers could contact 40 houses per day in plain areas and 30 houses on average in more scattered settlements. Results of the survey are shown in Table 9.3. After completing the baseline survey, baseline data for each PHC were prepared and compared to the standard indices. Services to the beneficiaries were started by means of regular house visits by the workers. One health card was opened for every family. One copy of the card (blue in colour) is retained by the family. The other copy (red in colour) is held by health workers and filed by village in sub-centres. It was noticed that the family took great care of their card and very few were lost.

All workers were also given tally sheets to retrieve data from the family health cards to prepare their monthly return. The workers were instructed to enter the work done in the tally sheet each day after their field visits.

In the present health delivery system, female health workers are mainly responsible for maternal-child health and family planning activities. Male health workers are mainly responsible for disease surveillance, control of communicable diseases, promotion of environmental sanitation and health education activities. Therefore all male health workers are asked to make entries on blue cards whenever they provided services to the beneficiaries. Male workers exchange information (about the services given) with the female workers during their monthly meetings. On receipt of this information from male workers, the female workers make entries in the family health card held at sub-centres.

Whenever female workers were absent because of sickness or leave, alternative arrangements were made to maintain continuity of services. Either the female supervisor from the PHC or the male worker paid house visits to deliver essential services. This ensured regularity of home visits and gained the confidence of people.

Supervision and monitoring

Continuous supervision was ensured throughout the test run period of one year. Monitoring is carried out at two levels: the PHC and the District.

Health assistants and medical officers from the PHCs supervise each male and female worker. Activities carried out by workers were verified in the field with the help of the blue card held by the households. Services rendered to the members of the family were checked. If any discrepancies were noticed, they

Table 9.3. Results of the baseline survey, November 1988

Sr. No.	Name of the PHC	Popualtion		Total eligible couples	Eligible couples practicing :		Total ante-natal cases	Total infants (0-1 years)	Children			Total No. of Sub-centre
		1981 Census	Surveyed		spacing method	Steril-ize			Pre-school	10yrs.	16yrs.	
1.	Dindori	22579	26334	4737	1670	837	646	820	3118	770	793	8
2.	Mohadi	20380	23056	3926	1169	478	467	672	2537	671	539	8
3.	Khedgaon	18861	21861	3784	1144	795	530	620	2633	586	469	6
4.	Nanashi	18802	22709	2826	1251	668	573	688	2618	635	640	8
5.	Ware	19196	22462	2850	1450	1018	514	734	2352	732	905	7
6.	Wani	20636	23446	4049	1305	938	548	692	2549	718	573	8
7.	Nigdol	22855	25842	2744	1405	1635	513	735	3033	700	600	8
8.	Varkheda	21169	22575	3005	1355	781	471	698	2473	557	427	8
	Total	164478	188285	27921	10749	7150	4262	5650	21313	5369	4946	61

were corrected by health assistants immediately. In the initial stages, weekly staff meetings were held to review the performance by workers. After the first round of house visits to complete the baseline survey, weekly meetings were replaced by fortnightly meetings.

The staff selected for the training of field workers became District Level supervisors for the project. They were assigned responsibility for guidance of field staff and for verification activities. Each member from the district team was assigned a PHC to monitor project activities. During the baseline survey, they attended weekly meetings at PHC level. Thereafter they started visiting the field along with the field workers to guide workers during their house to house visits. They supervised filling of cards and in the preparation of work reports with the help of tally sheets. In addition, supervisors also carried out random verification of work done by visiting the houses in the absence of workers to ascertain: whether workers visit houses at regular prescribed intervals; and whether the services given to the beneficiaries had been entered in appropriate columns of the card; whether some of families had been omitted; whether computation of activities carried out has been properly done; and whether workers make use of these cards in planning their day-to-day field activities.

Thus, PHC and district supervisory staff visits helped to extend timely assistance and guidance to field staff, and to gain the acceptance by workers of new system. Apart from PHC and district level monitoring, officials from Health Directorate, Government of India and ESCAP visited the project at regular intervals. They paid visits to the houses, interviewed households, verified health cards, and interrogated formal and informal leaders from the community. Thus all out efforts were made to establish the system and impress upon the workers its usefulness and effectiveness.

Data utilization

In order to enhance the data utilization capability for programme management, mid-level managers were trained in the use of micro- computers and simple data analysis techniques. The training courses were organized at the Indian Institute of Population Studies (IIPS). ESCAP and IIPS staff provided the necessary technical reports to organize these courses.

Currently data are handled only manually, but plans are underway to introduce a computer based data management system.

D. ACHIEVEMENTS

While launching the project, it was envisaged that every family would be visited by a health worker at least once every month. Thus from November 1988

to January 1990, it was expected that there would be 15 visits to each household. But, in practice we observed that workers could visit every household only once in 45 days. In some easily accessible areas visits could be done once in a month. But in isolated hilly, inaccessible villages, the average number of visits were as low as one every two months. The overall average for project area was eight to ten visits to every household during a twelve month period. Details are shown in Table 9.4.

Initially, we were apprehensive about acceptance by workers to this new system. However, during the test run, it was observed that workers were extremely happy with the new system, for the following reasons.

1) For the first time they have been trained and informed about what is expected of them, and what are their job responsibilities.
2) They learnt to plan their daily, weekly activities and learnt to carry out day-to-day field activities.
3) They are trained to retrieve data for the preparation of their monthly returns.
4) Workers found it convenient and easy to record services given to the beneficiaries on the spot and not by memory.
5) The new system also gave them an opportunity to interact with the community and to develop close rapport with people and beneficiaries.

The new system has helped workers to carry on their day-to-day work regularly and with care and to avoid absenteeism from duties. Workers expressed the view that unless they carried out their day-to-day activities, it was difficult for them to keep pace with the demands of the new system. If they are absent from duties on certain days, they find it difficult to cope up with the extra load of work. This has helped to maintain regularity in their field work.

In terms of delivery of health services, the main achievements of the project are as follows:

1) The services are made available at the doorsteps of the people
2) Owing to the regular visits of health workers, people did not have to travel long distances to seek medical help.
3) People gain a better appreciation of health facilities and learn to approach health workers, sub-centres and PHCs, particularly for ante-natal care and immunization of children.

Table 9.4. Number of house visits paid by health workers to each family in project area, January 1990

Sr. No.	Name of the PHC	Population	Total No. of houses (Residential)	Total No. of cards	Average No. of visits to the village	No. of visit's to the family	
						Minimum	Maximum
1	2	3	4	5	6	7	8
1.	Dindori	25780	4469	5531	11	9	13
2.	Mohadi	23056	4071	5217	12	9	13
3.	Khedgaon	22348	3614	4949	12	9	13
4.	Nanashi	22483	3839	4791	10	8	15
5.	Ware	23596	3541	4671	11	7	15
6.	Wani	24927	4063	5162	11	7	13
7.	Nigdol	22678	4483	5500	13	10	14
8.	Varkheda	23530	3970	5495	11	8	14
	Total	188398	32050	41226	91	67	110

Thus people started realizing that health is an asset and waited eagerly for the visits of the workers.

4) People started taking an interest not only in their own health but in the health of other families around them. This ensured active community participation in the health care delivery system.

The credibility and morale of the workers is increased. If for some reason, workers fail to make planned visits to villages, the community enquires about their absence. Workers feel happy about recognition given to them by the community and their job satisfaction and performance improves.

Supervisory staff started visiting villages in the project area independently of the workers and to review the services given to the members of the family even in the absence of the worker. Earlier they had to accompany workers for supervisory checks. The health card proved to be an effective tool in the monitoring of health care delivery, by facilitating independent supervision. Supervisors could inspect and evaluate the work done by the health workers in their absence. This has indirectly made the workers more responsible and accountable for their work.

Finally, there is definite improvement in coverage and quality of services rendered. Table 9.5 indicates that there were marked improvements in the coverage of immunizations and in family planning.

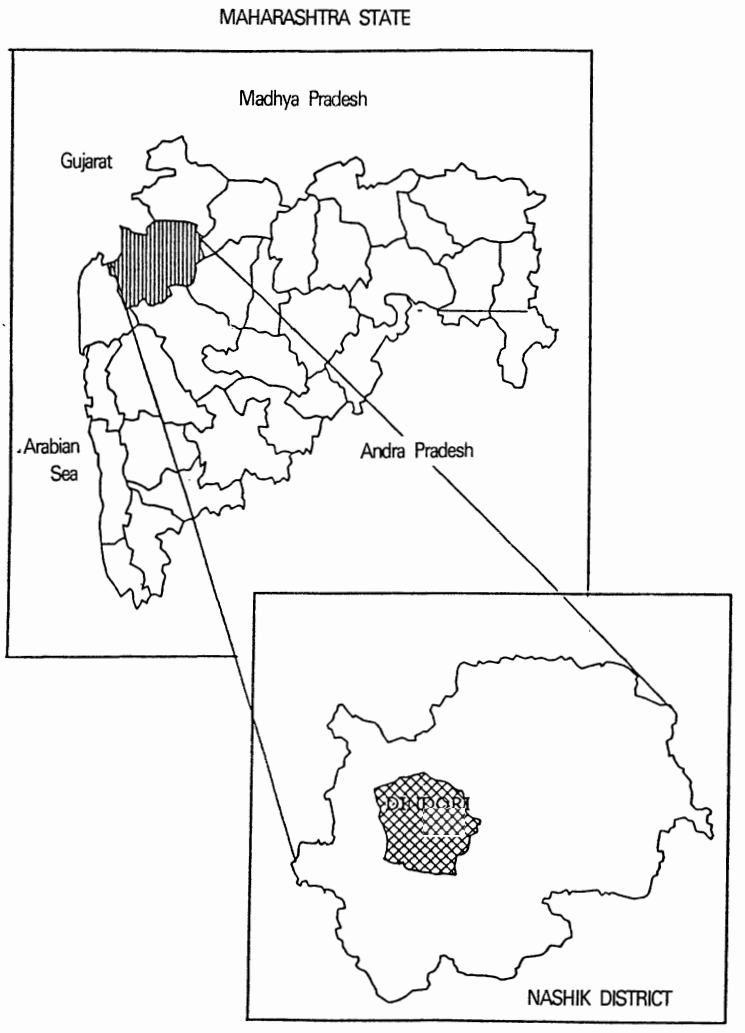
E. FUTURE DIRECTIONS

The State of Maharashtra is in the process of extending the new system to cover the whole of Nashik District. Already tentative plans have been drawn to train all the field staff of the District in the new procedure and the system will be in operation by December 1990. The new system will be gradually extended to cover the whole of Maharashtra State during the next few years.

Table 9.5. Health and family planning performance, 1988/89 and 1989/90

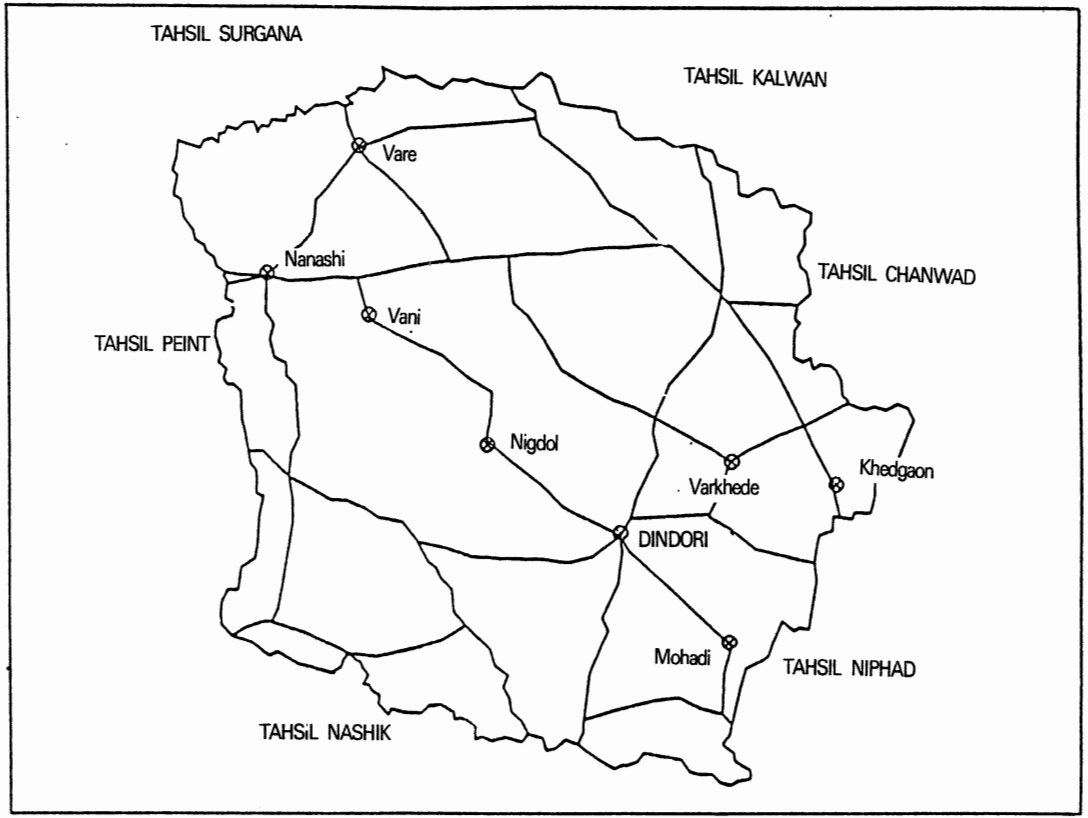
Sr. No.	Activities	Target	1989-89		1989-90		% Improvement in performance 1989-90/1988-89
			Achieve-ment	% achieve-ment	Achieve-ment	% achieve-ment	
I. Maternal Child Health							
1.	BCG	5650	4476	79	5931	105	+33
2.	DPT(IIIrd dose)	5650	4479	79	4946	88	+10
3.	Polio(IIIrd dose)	5650	4148	73	5146	91	+24
4.	Measles	5650	4343	77	4357	77	+0.3
5.	DPT(Booster dose)	5090	3286	65	3920	77	+19
6.	Polio(Booster dose)	5090	3299	65	4016	79	+22
7.	Vitamin 'A'	11550	14390	62	19652	85	+37
8.	PANA(Children)	11550	9646	84	8153	71	−15
9.	ANC Registration within 16 weeks	3400	2886	85	3826	112	+33
10.	TT(Mothers)	4535	4841	107	5116	113	+ 6
11.	PANA(Mothers)	8390	8627	103	10425	124	+21
12.	Deliveries Conducted by						
	a) Trained dais	–	1272	–	1590	–	+25
	b) ANMs/NMs	–	470	–	483	–	+ 3
13.	Dropout Rate						
	a) D.P.T.	–	21.5	–	17.7	–	−18(imp.)
	b) Polio	–	25.3	–	12.9	–	−49(imp.)
I. Family Welfare							
1.	Sterilization	1525	1241	81	1490	97	+20
2.	IUD Insertions	1418	542	38	622	45	+15
3.	Oral Pill Users	913	554	61	777	79	+40
4.	Condom Users	2523	2512	100	3011	126	+20

Figure 9.1. Location of Nashik District and Dindori Block



The boundaries and names shown on these maps do not imply official endorsement or acceptance by the United Nations.

Figure 9.2. Location of Primary Health Centres in Dindori Block



Annex 9.1 Family Health Card

Primary Health Centre — Village — Malaria No. — Source of water supply
Sub Centre — Section — Household No. — Date of registration

1) Primary registration

Person's Sr. No.	Mother's Sr. No.	Full Name	Date of Birth	Marital Status	Relationship to the head of the household	Remark (regarding death, use of method of family planning)

2) Primary immunization

Person's Sr. No.	First Name	Date of Birth	Weight at Birth	B.C.G	D.P.T.			Polio			Measles	Remarks
					1	2	3	1	2	3		

3) Immunization and preventive measures(1 to 5 years)

Person's Sr. No.	First Name	Date of Birth	D.P.T. Booster	Polio Booster	Iron Tablets			A Vitamin								Remarks
					1	2	3	1	2	3	4	5	6	7	8	9	

4) Immunization and preventive measures(6 to 16 years and pregant and other mothers)

Person's Sr. No.	First Name	Type	Double Vaccine			Tetanus Vaccine (10 years)			Tetanus Vaccine (16 years)			Predelivery tetanus vaccine			Iron Tablets (Mother)			Remarks
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	

5.1) Malaria

Person's Sr. No.	Name	Date when Blood sample was taken	Date of preventive treatment	Result of blood sample	Total treat-ment

5.2) T,B.

Person's Sr. No. & Name	Date when saliva sample was taken	Result		Do you take regular treatment
		+ve	−ve	

5.3) Leprosy

Suspective patient	Patients with conformed diagnosis and taking regular treatment

6) Pregnancy, Contraceptive Status and Follow-up

Mother's Sr. No. Father's Sr. No. Total pregnancies (excluding present pregnancy) Living Children

Sr. No.	Visit No.	1	2	3	4	5	6	7	8	9	10	11	12	Remarks
	Date of visit													
1	Date of last menstrual period													
2	Whether pregnant at the time of visit													
3	Contraceptive method in use													
4	Source of supply													
5	Any complications													
6	Treatment taken													
7	Reasons of changing the method													
Sr. No.	Visit No.	13	14	15	16	17	18	19	20	21	22	23	24	Remarks
	Date of visit													
1	Date of last menstrual period													
2	Whether pregnant at the time of visit													
3	Contraceptive method in use													
4	Source of supply													
5	Any complications													
6	Treatment taken													
7	Reasons of changing the method													

7) Other Health Activities

Sr. No.	Visit Number / Date of visit	1	2	3	4	5	6	7	8	9	10	11	12	Remarks
1	Disease surveillance													
2	Home deliveries by ANM/TBA/untrained													
3	Institutional deliveries													
4	Live birth													
5	Still birth													
6	Abortions													
7	Any other death													
8	Diarrhoea (attacks/deaths)													
9	Children given ORS													
10	Well disinfection													
11	Cataract cases													
12	Cataract cases operated													
13	Coitre cobes													
14	Children with malnutrition													

Sr. No.	Visit Number / Date of visit	13	14	15	16	17	18	19	20	21	22	23	24	Remarks
1	Disease surveillance													
2	Home deliveries by ANM/TBA/untrained													
3	Institutional deliveries													
4	Live birth													
5	Still birth													
6	Abortions													
7	Any other death													
8	Diarrhoea (attacks/deaths)													
9	Children given ORS													
10	Well disinfection													
11	Cataract cases													
12	Cataract cases operated													
13	Coitre cobes													
14	Children with malnutrition													

Chapter 10

HARBIN MUNICIPAL GOVERNMENT EXPERIMENT ON FAMILY PLANNING MANAGEMENT INFORMATION SYSTEM

by Gao Song Tao

BACKGROUND

Harbin, the provincial capital of Heilongjiang, is in the northeastern part of China. It has seven districts and two counties (cities) under its administration, having a total area of 6,900 square kilometres and a population of 4,020,000, of which, 1,050,000 are women of childbearing ages. In 1989, its birth rate was 14.53 per 1000.

In 1987, with the collaboration of the Population Division, of ESCAP, Harbin Municipal Government began to experiment with the family planning management information system (MIS) in parts of the city. Initial successes have been achieved and sufficient experience has accumulated for the gradual extension of the MIS through the whole city.

In China, the promotion of family planning is a long-term strategic task of fundamental national importance. To carry out that policy, special family planning institutions have been set up at state and local levels, and work teams have been established to organize, propagate information, and provide technical services. To collect and disseminate information on population and family planning at all levels, departments of information and statistics have been created. Over the years, a manual system of collecting and processing information on family planning in Harbin has been developed and a relatively complete system of statistical standards has been worked out. This plays an important role in policy-making, population forecasting, formulating targets for population growth, determining family planning priorities, and planning for social and economic development. But the marriage and childbearing behaviours of a population are complicated social phenomena and they cannot be fully reflected in the analysis of simple statistical indicators. Nor can the current statistical methods meet all demands for information. For instance, the total fertility rate is difficult to calculate and use-effectiveness of contraception and the causes for contraceptive failures are hard to analyze quantitatively from data collected under the current system. The information collected in grass-roots level log-books is not fully utilized. Moreover, there are no data on the relationships between socio-economic factors and population growth.

In recent years, with the development of family planning programme related statistics, there has been a great increase in information concerning marriage, childbearing and family planning among the population of Harbin. Our statistical system based on manual calculation is increasingly slow in processing and providing management with information needed for programme monitoring and evaluation. It no longer meets the demands for decision-making by the leadership or provides the grass-roots workers with the data that they need. Therefore, it was considered imperative to set up a unified, high efficiency, inter-connected and computerized family planning MIS.

A. PROCEDURES OF THE MIS EXPERIMENT

In 1986, the State Family Planning Commission (SFPC) began experiments for family planning MIS, providing training on MIS and computer technology for Harbin city as well as computer hardware. In the same year, we conducted initial experiments with family planning MIS in some selected enterprises and colleges, and achieved some success. Effective management and services were provided. The work load of the grass-roots workers was reduced, enabling them to spend more of their time serving couples of childbearing ages. To assist the MIS experiment, Harbin Municipal Government provided funds to set up a family planning MIS development and research base at Harbin Population Information Research Institute. Harbin was also designed by the SFPC as one of the experimental areas in the development of a MIS. These activities were conducted as part of our collaborative effort with the Population Division, ESCAP.

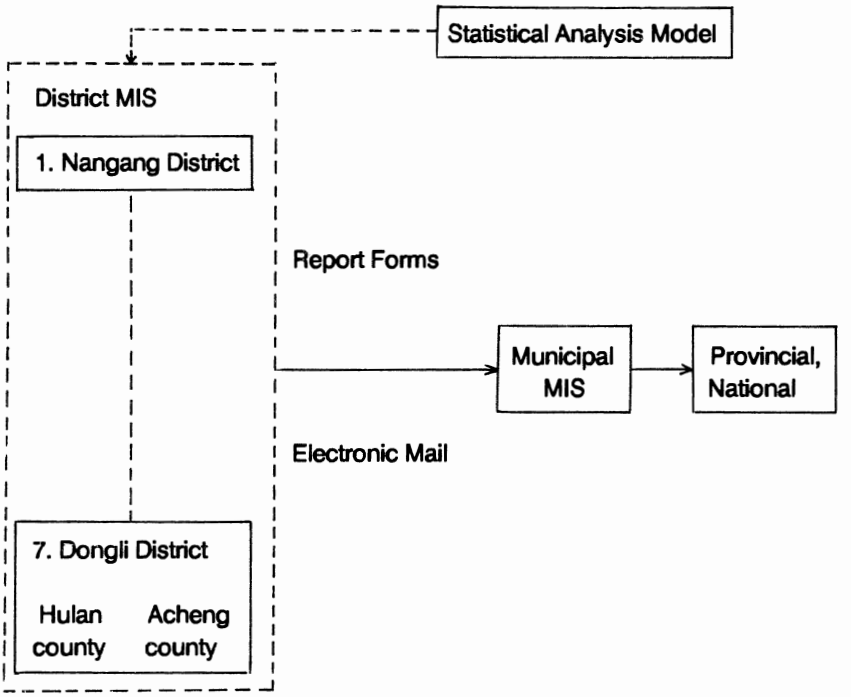
The experiment aims to strengthen the data base at the service point, and building from there upward to street/district/municipality/state and all the way up to the national level. Therefore, as a first step we strengthened the base at service point level by setting up relatively systematic and standardized management procedures, at the hamlet, village, county and city levels to meet the requirements for building a national MIS. The purposes of our experiment are: (a) to upgrade the current manual methods of fragmented information collection and ad hoc problem solving to a cohesive information and continuous monitoring system; (b) to enhance data collection capacity and data utilization efficiency, using data of the new system to conduct in-depth statistical analysis; and (c) to enhance family planning services provided by workers to the childbearing couples, and create a relatively complete service model at the grass-roots level.

In our current work, the following specific targets have been set: (a) to set up regional data bases at district (county) level, develop a software package for family planning management at district (county) level and generate a statistical data base at the municipal level, achieving the initial goal of sharing regional resources; (b) to develop special components of the MIS, such as management

of medicines, technical services, population forecasting, sample surveys, and evaluation and dissemination of information; (c) to expand the establishment of regional data bases for women of childbearing ages, and develop related statistical analysis packages, as part of the general MIS; and (d) to replace floppy disk exchanges with network communications techniques.

The model of Harbin family planning MIS is composed of two levels: a municipal MIS and district MISs, combined to form an information feedback MIS (see figure 10.1).

Figure 10.1. Model of Harbin MIS



The main functions of the municipal MIS are to conduct general evaluations of districts and to provide statistical models for use at the district level in a way that will provide the scientific basis for decision making by the leadership.

The district MISs exercise direct control over their data bases. The latter contains information about each women of childbearing age, including details about marriage, childbearing, contraceptive use and side-effects, and socio-

economic characteristics. District MISs extract relevant information from these data bases and transmit it on floppy disks to the municipal MIS. They also carry out certain statistical and forecasting analyses to assist district officials in decision making.

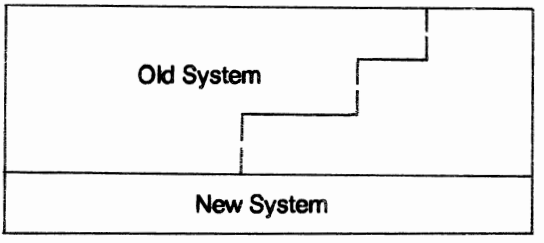
To meet the technical requirements of the new system, the municipal MIS needs a 386/AT computer and a 286/AT, while each District needs an AT computer. As computer technology has developed rapidly in recent years and the design period for our new MIS is fairly long, the original requirement for hardware has altered. In 1986, the municipal government purchased two GW-CH/XT computers, and in 1988, an IBM super III/XT was procured. In 1989 our city bought three CIC 286's and one CIC 386/AT. At present, XTs can no longer meet the design requirements for the new system in performance and capacity, and they will be phased out as and when our budget permits. At present five districts under experiment are equipped with CIC 286/AT and XT computers, and the respective district governments have provided funds, technical specialists and necessary support inputs. After initial teething problems, the computers are now operating smoothly and appropriate software in Chinese is available.

The implementation of the new system was based on an analysis of the previous system. Useful features of the previous system are incorporated into the new computerized system. As the essential feature of any MIS is the management of data, we began with the development of various kinds of application. Then, step by step the functions were expanded to include planning control analysis and policy making. The operational steps are as follows:

a. Formulation of targets and work plan
b. Determination of requirements for information at all levels
c. Specification of initial set of statistical standards
d. Selection of experimental units
e. Formulation of training plans
f. Drafting of system's technical documents
g. Experimentation with new reporting protocols, frequency of information flow and software packages
h. Establishment of data bases of women of childbearing age
i. Compilation of manuals for data base management and application
j. Trial operation of the new system
k. Adjustment and testing of the new system
l. Evaluation and synthesis of experience of the new system
m. Improvement of the new system and its wider application
n. Development of specialized software packages.

The new MIS will be introduced in a phased manner. After successfully passing adjustments and tests, the new system will operate in parallel with the old system for some time, so that the uniformity of report forms from the regional experiment areas and those from the non-experiment areas will not be affected.

Later, in the process of expanding the experiment and of putting the new system to wider application, the method of sectional transformation will be adopted, as is shown in the following diagram:



In the early half of 1988, under the leadership and guidance of the municipal leader concerned and major leaders of the municipal Family Planning Commission, the implementation of the family planning MIS experiment began and we set up specialized organizations and institutions and appointed persons specially to take charge of the experiment. In May, we invited the representative from the Population Division of ESCAP to give lectures to the district (county) leaders taking part in the regional experiments. Chairmen of district (county) family planning commissions and responsible personnel of the provincial and municipal family planning commissions attended the lectures, numbering over 20 people. He also accompanied our specialized personnel to urban neighbourhood committees and rural towns and villages, and discussed with the grass-roots workers plans for the design of the new system. Technical counseling and guidance were provided by the Division of Planning and Statistics of the State Family Planning Commission.

To check whether new survey forms on marriage and child birth of women were suitable, we conducted a small scale survey of women of childbearing ages. The forms were subsequently revised (see annex 10.1) and reporting of all the 48 indices on women of childbearing ages changed from a quarterly to a monthly basis (see annex 10.2). Recording and reporting any changes of status was done every quarter. In this way, the job of grass-roots personnel was simplified and quantity of information reduced. In the early half of 1989, we selected two units (an urban subdistrict and a rural town) for field implementation of the new system. According to the design requirements of the new system, the histories of marriage, child birth and birth control of 16,000 couples of

childbearing ages were re-registered, and a data base of women of childbearing ages was set up in each unit. After assessment of initial results, we selected three more units (urban sub-districts). We conducted a training course for 100 people at each subdistrict office on filling the family planning forms and the reporting cards for any changes in status. To ensure quality of training, both class and field training courses were organized. In the field they were assigned to separate areas and actually filled the forms. After completion of the form filling, the trainees were rotated between the areas and assigned the responsibility of rechecking each other's work. The new system's survey took about 20 to 30 days, and quality checks for the survey forms lasted for a further 15 days. During this period, all the specialized personnel were present on the spot, providing guidance and technical counseling and laying the foundation for the timely creation of the data base of women of childbearing ages.

The data input requires large amounts of work and strict quality control. To ensure input quality and speed, we engaged other specialized personnel to supervise, and the input of data of 37,000 women of childbearing ages was completed in 45 days. Now the working personnel at each of the five experimental units conduct monthly visits, filling forms and transferring any changes in status every quarter.

B. EVALUATION OF THE MIS EXPERIMENT

The main results of the experiment are summarized below in Table 10.1.

a. The new system has reduced the work load at the grass-roots level, and raised utilization of data. As a result, some data now can be obtained without special ad hoc surveys.

b. Calculation speed and quality of data have been raised.

c. An information feedback system serving the grass-roots levels has been formed.

d. The chains of work in the statistical system have been optimized, and an entirely new set of statistical management and work pattern established.

e. The competence and managerial expertise of working personnel at various levels has been enhanced.

f. The number of indicators has been increased, and statistical and diagram analysis has been made possible.

g. Considerable aid has been provided for leaders and managers at different levels in their policy making and management work.

Table 10.1. Comparison of old and new systems

	Old System	New System
Method of Data Collecting		
Municipal	Collecting Reporting Forms	
District	Collecting Reporting Forms	Data Base
Subdistrict	10 Volumes	2 Volumes
Neighbourhood Committee	1 Card, 8 Reporting Forms	1 Card
Data Management		
Municipal	Computer	Computer
District	Manual	Computer
Subdistrict	Manual	Computer
Neighbourhood Committee	Manual	Computer
Statistical Analysis		
Municipal	No	Correlation Analysis
District	No	Correlation Analysis
Subdistrict	No	Correlation Analysis
Neighbourhood Committee	No	Correlation Analysis
Time Required for Statistical Reporting		
Municipal	15 days	6 days
District	10 days	5 days
Subdistrict	5 days	3 days
Neighbourhood Committee	2 days	2 days
Work Load		
Municipal		
District	small	big
Subdistrict	large	small
Neighbourhood Committee	large	small

The operational results of any new system are affected not only by its own technical defects, but also by its environment. For example, a number of problems have discovered in the new Harbin MIS.

a. Professional competence of personnel cannot yet meet the requirements of the new system.
b. The new system cannot immediately change the traditional work style of the grass-roots personnel, as it takes time for them to get accustomed to it.
c. As the software packages we developed must be applicable at the grass-roots level, the operational system and on-screen display ought to be in Chinese. It will cost much time and money to convert software written in English into Chinese.
d. There has been a lack of training in system analysis, demography and computer technology for the specialized personnel.
e. Since this is the first family planning MIS experiment that has ever been conducted in our city, we lack adequate management experience, and consequently, at the initial stage of our management was loose.

Through the few years of experimental work, we have realized that we should publicize the importance and necessity of the establishment of the MIS. In this way, we can change traditional management concepts, bring about the transformation from manual systems to more advanced automatic systems and accelerate the acceptance of modern management techniques.

The setting up of the family planning MIS is a difficult task, but the management and maintenance of the information system are even more important. The maintenance of the system environment must be enhanced. Ensuring its operation under optimum environmental conditions and in the most reliable state. As for hardware, a series of reliability and safety measures should be taken to protect the data base against damage and a new system management regulations should be set up.

The functions of the system should be constantly expanded, optimized and perfected. Technical personnel should be trained for all levels; in particular, they should be trained with the combined knowledge of both family planning management and the MIS.

With these lessons in mind, we are confident that the next phase of the new system, including its extension to four new districts, will be a success. Also we hope that this system will serve as a proto-type for improving the MIS in China.

Annex 10.1 Family health Card Contraception status and Follow up

Name : Identification No. : Province : District : Street/ County : Commission Village : Serial No.

Resident : Year of birth : Date of 1st marriage : Education : Ethnicity : No. of children ever born : Son : Daughter :

Husband : Year of birth : Date of 1st marriage : Education : Ethnicity :

Date of one child certificate issued :

	1st quarter	S. No.	2nd quarter	S. No.	3rd quarter	S. No.	4th quarter	S. No.	1st quarter	S. No.	2nd quarter	S. No.	3rd quarter	S. No.	4th quarter	S. No.
1. Date of visit		1		1		1		1		1		1		1		1
2. Exposure status		2		2		2		2		2		2		2		2
3. Pregnancy status of outcome		3		3		3		3		3		3		3		3
4. Pregnancy planned/unplanned		4		4		4		4		4		4		4		4
5. Contraceptive methods used		5		5		5		5		5		5		5		5
6. Where sterilization obtained		6		6		6		6		6		6		6		6
7. Source of contraceptive supply		7		7		7		7		7		7		7		7
8. Any complication		8		8		8		8		8		8		8		8
9. Who advised for change of methods		9		9		9		9		9		9		9		9
10. Reason for changing/stoping methods		10		10		10		10		10		10		10		10

CODE FOR TABLE HEADING

Province 23

District
- Daoli 01
- Nangang 02
- Daowai 03
- Taiping 04
- Dongli 05
- Xiangfant 06
- Pingfant 07
- Hulan 08
- Acheng 09

Education
- College-above 1
- Senior middle school(special or technical) 2
- Junior middle school 3
- Primary school 4
- Literate 5
- Illiterate 6

Ethnicity
- Han 1
- Hui 2
- Man 3
- Korean 4
- Mongolia 5
- Others 6

Occupation
- Worker 1
- Peasant 2
- Student 3
- Cadre 4
- Unemployed 5
- Housework 6
- Self-employed labourer 7
- Retired 8

CODE FOR ITEMS IN THE FORM :

(2) Exposure status
- Exposed 1
- Not exposed 2

(3) Pregnancy status of outcome
- Not pregnancy/not applicable 0
- pregnant 1
- Still-birth 2
- Natural abortion 3
- Abortion 4
- Boy 5
- Giri 6
- Male twins 7
- Female twins 8
- Boy-girl twins 9

(4) Pregnancy planned/unplanned
- Planned 1
- Unplanned 2
- Not applicable 9

(5) Contraceptive methods used
- Male sterilization 1
- Female sterilization 2
- IUD 3
- Oral contraceptive 4
- Injectable 5
- Condom 6
- Contraceptive for external use 7
- Others 8
- Not applicable 9

(6) Where sterilization obtained
- Town level hospital 1
- District level hospital 2
- Provincial hospital 3
- Mobile medical team 4
- Family planning clinic 5
- Private clinic 6
- Other places 7
- Not applicable 9

(7) Source of contraceptive supply
- Work unit 1
- Family planning clinic 2
- Drug store 3
- Others 4
- Not applicable 9

(8) Any complication
- No problem 0
- Weight gain 1
- Bleeding 2
- Abnormal menstruation 3
- Back ache 4
- Reduction in sexual desire 5
- Cannot work 6
- High blood pressure 7
- Others 8
- Not applicable 9

(9) Who advised for change of methods
- She herself 1
- Husband 2
- Freinds 3
- Doctor 4
- Relatives 5
- Others 6
- Not applicable 9

(10) Reason for changing/stopping methods
- Crowded living arrangement 1
- IUD naturally expelled 2
- Working condition 3
- Side effects 4
- Sickness 5
- Menopause 6
- For unplanned pregnancy 7
- For planned pregnancy 8
- Became pregnant despite contraceptive use 9
- Due to frequent separation 10
- Widowed/divorced/separated 11
- Pregnant 12
- Others 13
- Not applicable 99

Annex 10.2

Indicator	Statistical measures		Source of data
	Absolute	Rate/Indicator	
Population	Total population Number of births Number of deaths Natural population growth	Birth rate Death rate Natural growth rate	Regular statistical form reporting
Births	Number of annually planned births Annually planned natural population growth Same period last year Number of births Natural population growth	Rate of actual accomplishment of population targets Rate of actual accomplishment of annual plan for birth Natural growth Relative dynamic indices (Differences) of births and natural growth compared with last year	Regular statistical form reporting
Births among women of childbearing ages	Number of women of childbearing ages Number of births within plan Number of births outside of plan Number of births of first child Number of births of second child Number of births of third or more child Number of women of specific childbearing ages	Actual birth rate Planned birth rate First-child, second-child, multiple birth rates Birth rates of specific age groups General birth rate Life-time birth rate (an actual generation) Population reproduction rate Average time span between generations Real natural growth rate	Regular statistical form reporting or sample survey or special survey

Indicator	Statistical measures		Source of data
	Absolute	Rate/Indicator	
Fertility regulation	Number of women using contraceptive methods Number of women failing in contraceptive methods Number of women having induced abortions	Contraceptive prevalence rate (Total) —Sterilization rate —Other method Induced abortion rate Failure rate Birth-induced abortion ratio	Regular statistical form reporting or sample survey or special survey
One-child family acceptor	Number of one-child families Number of one-child families that received certificate in the year Accumulated number of families that should have received certificates Number of couples with certificates that have taken contraceptive measures	One-child certificate rate One-child rate Rate of couples with certificate taking contraceptive measures	Regular statistical form reporting or sample survey or special survey
Number of conceptions of women of child-bearing ages and remedial measures	Number of quarterly conceptions Accumulated number of conceptions within specified period Number of women taking remedial measures Number of briths planned for next year	Predicted planned birth rate for next year Ratio of remedial measures to be taken next year to conceptions next year	Regular statistical form reporting

Indicator	Statistical measures		Source of data
	Absolute	Rate/Indicator	
Nuptiality	Number of marriages Number of late marriages Number of first marriages Number of first marriages by sex and age groups Number of divorces Number of divorces by sex and age groups	Marriage rate Late marriage rate First marriage rate Ratio of mean first marriage age to mean marriage age First marriage rates by sex and age group Divorce rate Re-marriage rate Marriage-divorce ratio	Regular statistical form reporting and sample survey
Others	Number of diseases and deaths Number of deaths by age group Number of illiterate people and people with mental deficiency Number of students in schools Number of empolyed people with college, secondary and elementary education Number of skilled workers Number of workers of different professional levels	Average height, weight, chest measurement, growth rate, morbidity/mortality rate, average life expectancy Ratio of people with mental deficiency Ratio of people with good, fair and poor intelligence Illiteracy-literacy ratio Education levels of empolyed people Percentage of science and technology personnel Percentage of employed skilled workers Average professional level (wage level) workers	Regular statistical form reporting or sample survey or special survey

Chapter 11

MANAGEMENT INFORMATION SYSTEMS IN HEALTH AND FAMILY WELFARE PROGRAMMES: OBSERVATIONS FROM EXPERIMENTAL PROJECTS*

by M.E. Khan

INTRODUCTION

In principle at least, it has been the endeavour of policy makers and programme managers to implement all developmental programmes properly, to monitor them, and to take corrective measures, if necessary. In reality, however, monitoring of development programmes (including the Health and Family Welfare Programme) has not been taken as seriously as it should have been. More often than not, the data collecting machinery is concerned with "achievements" against given "targets" rather than looking into the overall performance of the programme in terms of quality of services or the extent of its coverage. For example, in rural development programmes, even today, the main concern is whether the allotted fund has been spent or not, and attempts are rarely made to ascertain whether the benefits are reaching the intended target group or what impacts are being achieved the schemes (Financial Express Bombay, October 15, 1986). Similarly from public health statistics, we can tell the total number of children immunized in a particular year, but there is no way to know what proportion of total children in a given locality have been protected from various infectious diseases. However, of late, monitoring of developmental programmes is being taken much more seriously. For example, a monitoring system has been evolved for Integrated Rural Development Programmes. A similar monitoring scheme has been recently launched for the Health and Family Welfare Programme (for details see Narasimhan 1990). To make these evaluations more objective, independent research institutions and consultancy organizations are being involved increasingly in data collection and analysis. It appears that the implementing agencies and policy makers are gradually realizing the urgent need for establishing a meaningful monitoring system which could help them in evaluating the programmes, not only in terms of quantitative achievements, but also in terms of the quality of services and overall impact of the programme. A beginning in this direction has been made. However, a scientific system and culture of

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* Views presented in this article are those of the author and do not necessarily reflect the view of Operations Research Group.

collection and use of data for programme evaluation and planning has yet to evolve.

Before development of such an efficient system, there are many questions that need to be discussed and debated. The questions relate both to conceptual as well as to operational aspects. The main questions that need serious attention are:

- What is it that we are trying to monitor?
- What are the possible indicators or parameters that could be used for measuring the performance of the programmes or their impact?
- What is the existing mechanism of generating data? Does it maintain an acceptable level of accuracy?
- Do we have the data in required form? If not, what minimum additional informations are required? Who should collect them?
- Is the system cost effective and reliable?

These questions are specially applicable to health and family planning programmes which are in dire need of an efficient management information system to monitor achievements and impacts. In this paper an attempt has been made to examine briefly but critically the existing evaluation system in the health and family planning sector. Some of the recent experimental efforts to improve the monitoring system are also reviewed.

A. DATA SYSTEM AT PRIMARY HEALTH CENTRES

The Primary Health Centre (PHC) is the focal point of health delivery services provided by government in rural India. The Medical Officer in charge is the manager of the programme. According to the national norm, a PHC is responsible for providing health and family welfare services to about 30,000 population. However, because of scarcity of trained manpower and resources, this norm is being implemented in a phased manner and hence, in some states, a PHC covers a much larger population, ranging anywhere between 50,000 to 100,000. Under each PHC there are several sub-health centres. According to the national norm, each sub-centre is responsible for about 5,000 population. However, for similar reasons as in the case of PHCs, a sub-centre often covers more than 5,000 population, ranging anywhere between 5,000 to 10,000. At most sub-centres two paramedical staff - a male and a female - are posted. These workers are called multi- purpose workers and are responsible for providing primary health care service including MCH and FP at grass root level. To supervise their work, a cadre of male and female supervisory staff has been

created, both at PHC and at selected sub-centres levels, known as sector headquarters. Generally a sector supervisor is responsible for four sub- centres. To monitor the functioning of the workers posted at PHC and sub-centres, a variety of data is compiled and periodically sent to district and state level officials. An enquiry shows that at sub-centres, the following 13 registers or forms are generally maintained.

1. Village record
2. Family folders
3. Records relating to pre-natal, natal and post-natal services (MCH)
4. Eligible couple register
5. Records of distribution of iron and folic acid tablets
6. Records of distribution of vitamin A solution to children
7. Forms to accompany blood slides for detection of malaria parasites
8. Record of medical care and referral slips
9. Vital events register
10. Monthly reports
11. Daily diary
12. Records of meetings with community health volunteers and Anganwadi workers
13. Stock registers for equipment, furniture and for the receipt and issue of drugs, contraceptives stationery etc.

Workers are also supposed to maintain several other types of information. For example, in case of family planning, sub-centre staff are expected to maintain the following records.

1. Conventional contraceptive issue register
2. Conventional contraceptive stock register
3. IUD register
4. Sterilization register
5. Register for community education
6. Oral pill register
7. Medical termination of pregnancy register

Similarly at PHC level, a number of records are maintained. In each state, monthly performance data on various aspects of the health and family welfare programme are compiled at the sub- centre level and submitted to the PHC by

the first day of the following month. In some states this compilation work is completed by the 25th day of the same month. The sector supervisor assists and guides the workers of their area in preparing the monthly reports. The monthly meeting of the PHC is held between 1st and 3rd of each month when each sub-centre report is reviewed and discussed by the medical officer in charge. In some states, one of the senior district level officers is also present during these monthly meetings. At the PHC, between the 3rd and 5th day, data are compiled by a computing clerk and submitted to the District Authority. Between the 7th and 9th day the monthly meeting of the medical officers in charge of PHCs is held at District Health Office, when the data submitted by the respective PHCs are reviewed. Subsequently, the data are consolidated and the monthly report is sent to the State headquarters, by the 10th day of each month. These reports are then discussed at state level in the monthly meeting of District Health Officers, before forwarding to the Central Government. An abstract of sterilization/ IUD performances is sent to the Government of India by 7th day of every month through telegraphic message.

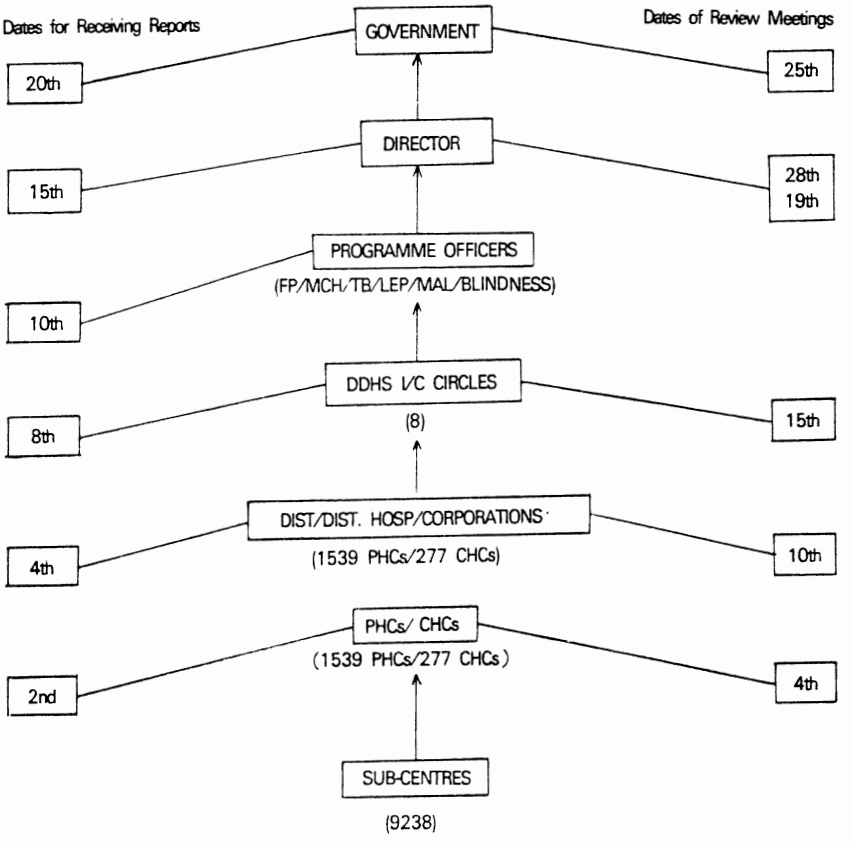
For the sake of illustration, the information flow in the State of Maharashtra from the sub-centre to higher levels is presented in figure 1. Generally the same system prevails in other states with minor variations in dates of meetings.

According to the requirements of central and state governments, a total of about 28 reports are compiled at district level and sent to state headquarters. Broadly, the reports can be divided into four categories, namely: programme performance; findings of sample verification of acceptors; supplies; and expenditure.

Contents and details of these information vary from state to state. For example, the State of West Bengal, under the India Population Project, has modified and improved its data reporting system. In this state the "monthly report" is divided into broad headings shown below:

a) Report on Blood Smears
b) Details of Malaria positive cases and therapeutic measures
c) Progress and assessment of DDT spraying
d) Monthly report on functioning of DDC and FTD
e) Tuberculosis detection cases and number of deaths
f) Gastroenteritis/Diarrhoeal diseases
g) Principal diseases (incidence and mortality) as recorded in PHCs and SCs.
h) Health and Family Welfare education activities

Figure 11.1. Information flow and review meetings



Source : Narvekar and Roy (1989).

i) Training in family planning
j) Family Welfare Performance (including MTP)
k) MCH activities and EPI
l) Hospital and dispensary services
m) Vital statistics (as registered)
n) Environment and sanitation
o) Supervision and other activities
p) ICDS Block activities
q) Control of blindness
r) Characteristics of FP acceptors
s) Prevention of food adulteration
t) Other facilities
u) Stock position of drugs, etc.

Each of the broad headings is divided into a number of sub- headings. Similarly in Maharashtra, 168 items were formerly included in the monthly report. Subsequently in 1987, the total number of items/indicators was reduced to 104 (Narvekar and Roy, 1989).

These examples clearly indicate the huge amount of data collected and maintained in the Health and Family Welfare Sector. The magnitude of data collection can be also judged from the fact that more than 160 thousand male and female health workers spend 25-30 per cent of their time in collecting and reporting data. According to an estimate, merely the cost of the paper used in collecting and maintaining these data is more than 8 crore rupees (5.0 million US$) per year while the total cost including time spent by the workers for collecting and processing the information would be around 50 crore rupees (31.2 million US$) (Murthy and Patel; ND).

B. SHORTCOMINGS OF THE EXISTING SYSTEM

The enormous amount of money and time spent on recording and reporting procedures should ensure that the data system thus established provides accurate and useful information for monitoring and planning. However, reviews of the existing MIS and the quality of the data indicate a number of shortcomings. Apart from the fact that the available data are generally incomplete, the quality of data is also questionable. A recent report of the Education and Information Division of Ministry of Health and Family Welfare (GOI, 1986) on the evaluation system of family welfare programme of the country reaches the following conclusions:

(1) In most of the states, eligible couple registers are neither maintained properly nor up to date.

(2) Maintenance of other registers/case cards is also not satisfactory.

(3) In most places, reported performance figures do not tally with the monthly progress reports and records/registers.

(4) Statistical staff at District Bureaus/Centres are not well versed is the reporting system. When converting conventional contraceptive and oral pill distributions are converted into summary indicators of coverage, staff often do not use correct formula.

Similar observations have been made by many others (Gandotra and Das, 1977; Khan, M.E. 1979, 1986; ASCI, 1989; Narayana and Venkatash, 1990; Murthy and Patel, ND; ORG, 1989).

There are several reasons for poor quality of data maintained at PHCs and sub-centres. A few important reasons are discussed below.

As indicated earlier, the paramedical staff at sub-centres are responsible for collecting a large volume of data. According to available studies (GOI, 1986; Murthy and Patel, ND; ORG, 1989) 36 per cent of the time of paramedical staff is spent on maintaining registers and submitting reports. In some cases, it is even more, as some paramedical health workers are required to maintain as many as 56 registers (GOI, 1986).

In the absence of any proper feedback from supervisors about the quality of data and their use, the workers responsible for collecting of data and maintenance of records at the lowest level are themselves not convinced about the utility of such data. Informal discussions in Uttar Pradesh and Bihar revealed that workers regard the completion of forms as simply "Khanapuri" (filling up blanks in a casual manner) and it hardly matters to them whether they over-report or under-report events. This perception is partly true as it is not clear how the large volume of data (irrespective of its accuracy) is used in decision making. Yet another problem in using PHC data for monitoring MCH and family planning services arises from the manner of collection and maintenance of statistics. For example, information about EPI maintained at PHCs gives only the distribution of the total number of children who were given various doses of vaccine against infectious diseases. In the absence of any knowledge about the target population (e.g. children aged 0-2 years who constitute the denominator for calculating coverage rate), it is very difficult to assess the extent of coverage against infectious diseases. The same is true for pregnant women who are immunized against tetanus or provided iron and folic acid tablets. While we have statistics on the number of mothers provided with the services (numerator), no information is

available on the total number of mothers who needed these services (i.e. became pregnant during the reference period). The absence of a denominator is largely attributable to the present practices of measuring performance in terms of achievement against a given target, rather than extent of coverage and its overall impact.

Similarly, as no data are collected on the socio-economic background of children receiving EPI services, or couples provided with family planning services, there is no way to know which segments of the population use PHC facilities and which are left out. As studies relating to other developmental programmes show, the clients of health and nutrition programmes are relatively more educated, better housed, from a high caste background, and are perhaps less vulnerable to infection. In contrast, the poor illiterates belonging to lower castes, and those living in remote villages or distant hamlets, who are more vulnerable to disease, are not covered by services.

Similarly, data maintained at PHC on pre and post-natal care are not only grossly incomplete but also refer only to the selected group of those who use the health clinic more often, and exclude those who are too sick, too poor or live too far away to use it. In other words the statistics are not only deficient because of incompleteness but are also biased (Murthy and Patel, ND).

Thus, a critical review of the existing MIS shows that although voluminous data are being generated, they are of limited use.

C. SELECTED OBSERVATIONS FROM EXPERIMENTAL PROJECTS

Lately, there has been a growing realization that an effective MIS is essential for proper planning and efficient implementation of the programme. To achieve this, a number of initiatives have been taken by the Government, International Agencies, NGOs, and individual researchers. For example, the Government of India has reviewed its formats. Modified versions are being tested in selected districts of four participating states, namely Haryana, Gujarat, Maharashtra and Rajasthan. Similarly, various State Governments such as Andhra Pradesh, West Bengal, and Uttar Pradesh have attempted to modify and improve their monitoring system as part of the Area Development Programme. With the financial and technical assistance of ESCAP, an improved MIS is being tested in the Nashik District of Maharashtra. The first phase of the system has been implemented successfully in a block of the district and it is now expected to be extended to the entire district. Similarly, the Indian Institute of Management has successfully demonstrated the usefulness of computerization of MIS at block level. Other institutions, such as the Ludhiyana Medical College, are also trying to develop and experiment with models to improve the existing data management system. The following paragraphs contain a review of some of these

experimental models which are showing promising results and which seem to be feasible and replicable. The discussion includes:

1. ESCAP's model which is being implemented in Nashik district of Maharashtra;
2. The Indian Institute of Management model established at Ahmedabad;
3. The WHO supported experimental MIS being implemented in Gujarat.

All the three are in the experimental phase. While the first two have been implemented at block level, the third project covers the entire district.

ESCAP model

Even before the Government of India introduced the integrated MIS in 1982, Maharashtra had developed its own MIS in 1981. Under the system, 39 key indicators were identified and a system was designed to generate monthly information on these indicators. Subsequently, the list of the indicators was lengthened, first to 157 and later on to 168 indicators. Realizing that the amount of information being generated was too large for all of it to be immediately used, the list was again reviewed in 1987 and was reduced to 104 indicators, out of which 34 were identified as the key indicators. The final MIS facilitated the timely flow of information from the majority of reporting units in Maharashtra. Today data on various indicators are available for a period of nine years. They are being used effectively for both longitudinal and cross-sectional comparison of performance of various units. The time series data can be utilized for proper planning of the health delivery system (for further details see Narvekar and Roy, 1989).

In the existing system, however, a number of problems have been observed and are listed below.

a) The task of collecting and maintaining these data is still substantial. Workers have to maintain voluminous records and registers and prepare a number of reports every month.
b) Records are still incomplete and sometimes inaccurate.
c) Information is not fully used by the Medical Officer In-Charge of the PHC who is the manager of the programme at PHC level. Similarly utilization of data by health workers to plan their work and by supervisors to monitor them is far from satisfactory.
d) The information also remains underutilized because of lack of appreciation of the data generated and this in turn leads to a

casual approach towards monitoring of the programme implementation.

e) Lack of availability of denominator (i.e. schemewise total target population) still continues.

f) As a result of these defects, the system has not helped much in increasing the contact rate of the workers with their clients or encouraged any substantial improvement in the quality of care.

Considering these limitations, the Government of Maharashtra, with financial and technical assistance from ESCAP, introduced a new experimental MIS model in the Dindori block of Nashik district. The objectives of the project are as follows:

a) review of the existing service statistics collection procedures;

b) assessment of data needs of policy makers and programme managers;

c) revision of existing forms and pretesting the reviewed forms and procedures; and

d) development of manuals, training of the existing staff in data collection techniques and of senior staff in data handling and field implementation of new procedures.

The study was launched in 1987 and the model was actually made operational from October 1988.

At the planning stage of the project, a careful review of all existing records and registers was made to understand the system. Detailed discussions were held with the programme managers and supervisors to identify their data needs, the intervals at which the information is required and priority areas which require special emphasis both for generating information and introducing a training curriculum. At the suggestion of the Maharashtra Government, most emphasis was given to family planning and MCH services. However, other national health programmes were also given appropriate attention.

On the basis of these exercises, a family health card was developed. The card has two basic components.

1. Basic information on household family members with special emphasis on mothers and children and their status with respect to coverage under various MCH and Family Welfare Programmes.
2. Services provided with follow-up for 24 months. There is a scope for updating the entries periodically.

The first component has seven blocks of information covering various aspects of family welfare programme. The broad headings of the blocks are as follows:

1. information on household members
2. coverage of infants under EPI (0-1 year)
3. coverage of children aged 1-5 years for under immunization, folic acid tablets and Vitamin-A
4. coverage of children aged 6-16 years under various MCH and FP programmes
5. malaria
6. TB
7. leprosy

The second component covers various services which are provided to clients, if necessity arises. It includes:

1. last menstruation date
2. pregnancy status
3. FP usership
4. source of supply of FP method
5. after-effects, if any
6. treatment given/medicine used
7. if switched to other method, reason for the switch
8. any home delivery
9. any institutional delivery
10. live birth
11. still birth
12. abortion/MTP
13. death
14. diarrhoea
15. use of ORS
16. boiling of water
17. cataract
18. cataract operation
19. goitre
20. any malnourished children

The card was pretested before making it operational. In the first phase of the study, the project was implemented in eight PHCs of Dindori Block of Nashik district covering about 200,000 population (about 36,500 families). At the outset the health workers were given rigorous training in filling up the card and were total the purpose and role of each indicator for planning and monitoring of the programmes. After training, the health workers were asked to visit and fill up the family card for all families falling in their work area. For each family two cards were made. One was given to the family, while its duplicate remained with the health workers as a record. After the initial introduction of the card, the workers were then advised to visit each family every month and provide all required services. During the visit all services provided by the health workers are entered both in the family card as well as in the duplicate card maintained by the health worker. Even if a family does not require any services, workers are still supposed to sign the card and enter the date of the visit. Every month on the basis of the entries in the duplicate family cards, health workers make a tally of various services provided over the month in specially developed forms and submit them to the PHC as the monthly report.

Observation on the first phase of the project clearly indicates that it has succeeded in removing many of the drawbacks of the existing MIS in the State of Maharashtra listed earlier. Some of the advantages are described in Chapter 9 of this volume.

It is understood that the Government of Maharashtra has decided to extend this system to the other blocks of Nashik district. Apparently the system is replicable in a larger administrative area or even the state as a whole. However, it is sensible to proceed cautiously by initial implementation for an entire district. ESCAP should consider seriously the possibility of computerizing the system so that retrieval can become easier. A decision is also required on whether the computerization should be done at district level or at block level. Considering the cost implications, replicability in a larger number of districts and the physical and human resources available at district level, perhaps district level computerization would be the more appropriate than block level. However, more discussion is needed; as the system developed at Ahmedabad indicates that establishment of computers at block level may not be too difficult.

Computer based information system at Bavala, Ahmedabad

In 1986, an initiative was taken to develop an experimental computer based MIS at the Rural Health and Family Welfare Training Centre (RHFWTC), Bavala in Ahmedabad district. The MIS has been developed by the Indian Institute of Management, Ahmedabad and presently it covers a population of 260,000 spread over three blocks and 51 sub-centres. The objectives of the system are to:

(a) improve population enumeration and quality of data;

(b) provide data to assess quality and quantity of health services;

(c) promote data analysis and data use among the PHC/district level managers

The emphasis of this system is on MCH, family planning and the extended programme of immunization. Accordingly, the system maintains a data base on nearly 38,000 mothers and 18,000 children under age three, stored on 50 diskettes.

The required information has been gathered and stored separately for each village falling under the block. The following four files have been created:

1. Eligible couple file
2. File for children under 3 years of age
3. Ante-natal care (ANC) file
4. Post natal care (PNC) file

The four files have two common fields, namely house number and eligible couple number. These are used for linking the files with each other.

The eligible couple file contains data on age, pregnancy status of women, information regarding living and dead children and acceptance of family planning method. Once in every six months the eligible couple file is updated by adding new couples and deleting those who have not remained eligible or have migrated from the area.

The file on children below three years of age contains information on age, sex, birth order, and dates of various immunizations etc. There is a field to show immunization status of children i.e. completely immunized, 'incompletely immunized' or 'not immunized at all' and enrollment of the child in Integrated Child Development Service centre etc. The basic data for both the eligible couple file and the child file were taken initially from the eligible couple register. Subsequently, the workers were given printouts containing these data and were asked to update them. Both the files were then updated. After each monthly update, a fresh printout is given to the workers for the next months' processing.

The Antenatal Care file contains information about currently pregnant women. After a woman delivers, her record is deleted from the ANC file and appended to the PNC file. The ANC file includes information on age of the woman, number of children, ANC registration date, date of last menstrual period, number of children dead, TT immunization, folic acid tablets taken, type of personnel conducting delivery, outcome of delivery, sex and weight of new born.

From the available information, risk is assessed in terms of fixed criteria; the higher the number of risk factors the greater is the risk. For continuous updating of the antenatal file the workers bring to monthly meetings information about new cases and the services provided over the period. The information is entered into a computer and a copy of the printout is given to the workers. This contains records of pregnant cases who need their attention for provision of antenatal services.

A number of software packages have been developed for continuous updating and retrieval of the data. To monitor the performance of the workers, two additional files - a month file and worker file - have been created. The monthly performance figures are entered in the month file. With appropriate software, this monthly information is added to the worker file giving cumulative performance of the worker. Various formats have been prepared for printing reports on worker-wise performance. Based on the level of performance each worker/supervisor is given a score which helps in monitoring the work.

The files are utilized in various ways to generate useful information for monitoring and evaluating the programme. Details of how each file is utilized are listed below.

Eligible couple file

1. To monitor the point prevalence and trends of acceptance of different family planning methods, i.e. to obtain the couple protection rates for villages, sub-centres or PHCs.
2. To provide complete and updated eligible couple registers (villagewise) to the workers, on which details of visits can be recorded.
3. To provide lists of target couples (couples with two or more children out of which at least one is male but who have not accepted a permanent family planning method) to the health workers, gram panchyats and teachers.
4. To analyze the qualitative aspects of family planning acceptors.

Children's file

1. To assess the immunization work done by the workers during a particular month.
2. To monitor the coverage of children of specified ages by different immunizations.
3. To provide the dropout rates for various immunizations village-wise and to take appropriate measures accordingly.

4. To calculate the average ages for different doses of immunizations and intervals between the dose.
5. To provide up to date lists of unimmunized and partially immunized children to the workers.

ANC and PNC files

1. To show the extent of registration of new antenatal cases by month/year for each sub-centre.
2. To measure the types and extent of services provided to the antenatal cases.
3. To assess the utility of trained staff by the community for conducting deliveries.
4. To promote the post-partum approach for acceptance of family planning methods.
5. To identify the 'at risk' antenatal cases for referral services.

Worker file (individual worker's performance)

1. To monitor the performance in different programmes every month in the staff meetings.
2. To give a score for achievement in different programmes on fixed criteria to make the performance monitoring easy.

The system has been found quite useful both for monitoring and for increasing the coverage of mothers and children by the MCH and family planning programme. Registration of antenatal care has risen and the overall registration of live births, deaths and other vital events has also improved. The improvement of the data base after one year of implementation can be judged from table 11.1.

As can be seen from the table, the registration of ANC cases increased by 49 per cent. Similarly, registration of live births also rose by 117 per cent and reporting of current birth dates by 69 per cent.

The project created tremendous interest among the medical staff who are able to use the data effectively by interacting with the computer itself. The simple software that has been developed allows them to interact with the data system and they are able to understand how individual records are aggregated into village statistics and also to appreciate their implication in terms of health care received by the people.

Table 11.1. Indicators of data improvement after one year of system operation

Indicator	1985-86	1986-87
Population	247,601	250,943
Target couples	37,860	38,509
ANC cases	2,570	3,840
Live births registered	830	1,807
Percentage of infants with birth dates	10%	69%

Source: Murthy and Patel (ND).

The experiment at Bavala demonstrates the feasibility of a computer based data system at PHC level. Appreciation by the workers and its utilization for monitoring and planning purposes at all levels has been noticed. However, how far the same system could be replicated without much professional support is an open question and there is a need to test it in a greater numbers of PHCs.

WHO supported MIS in Gujarat

The MIS in the relatively progressive and developed State of Gujarat, is not much different from those in other states. It suffers from the drawbacks described in the first section of this paper. However, some attempts are being made to improve the existing system so that the large volume of data which is being collected every month can be effectively utilized by making it as complete as possible and improving its quality to the desired level. In this endeavour, the government of Gujarat is implementing a modified version of MIS in one district on an experimental basis. The venture is financially and technically supported by WHO. This project is being implemented in three other states, namely Maharashtra, Rajashthan and Haryana.

The focus of this project is on the following objectives.

1. To reduce the number of registers and reports maintained by workers. As observed earlier, there is much duplication in the information recorded in these registers and hence the workload can be substantially reduced by developing a few comprehensive registers.
2. To give training to all levels of staff - from the District Health Officer to the health workers - on important programme

indicators and their utilization in monitoring and evaluation. As mentioned earlier, the inability of the PHC staff to appreciate the utility of these indicators is a serious obstacle to improving the MIS.

3. To establish a procedure of information flow from the sub-centres to PHC to district level and to state level and to ensure a timely feed back which is at present almost non-existent.
4. To expedite the processing and retrieved of data by computerizing the information supplied at district level.

With these operational objectives, the project was launched in 1988 in Gandhinagar district. At the beginning of the project, a two day training workshop was organized for the District Health Officer, medical officers of all the PHCs and district level supervisors of different health programmes. The sector supervisors also attended the seminar. Subsequently, the health supervisors and health workers were trained in three different batches for four days each.

Altogether 130 health officials and staff of the district were given orientation training on the modified MIS. Care was taken to explain all newly developed formats and procedures of entering the information in the forms. Before finalizing the formats, they were pretested. Under the project, the flow of information is fairly regular and timely. The information provided both by male and female health workers is consolidated at sub-centre level. The sub-centre report is spent to PHC on the 1st day of every month. The PHC report is sent to district on the 5th day of every month. The district level report is submitted to the Commissioner (State Headquarters) by 15th of every month. These dates are strictly observed.

A system of feedback has also been established. Supervisory visits by higher officers to PHCs and sub-centres have become a regular feature of the system. Discussion with health officers indicates that they are satisfied with the modified formats and find them easy to maintain. The time required for maintaining the records has been reduced substantially. The number of registers to be maintained has fallen from 30 to 13.

Though presently the data are being analyzed manually, WHO has agreed to computerize the system and thus facilitate retrieval.

Discussion with state and district authorities shows that they are happy with this experiment. However, some reservation has also been expressed that, in the attempt to reduce the contents of reports, only major indicators of the programme have been retained and many important aspects have been dropped. For example, information on high risk cases, school health, guinea worm cases, health education and so on have not been included in the system. Further, as

the new formats prescribed under the system do not contain all health indicators required to be monitored by the state level officers, the old reporting system is still continuing in parallel with this new system, thus duplicating the efforts at the PHC and district level.

Finally, as no data base has been created in this system that can provide accurate information on each target group (the denominator), the measurement of performance continues in terms of percentage of target achievement rather than coverage or impact of the programme. Hence all the limitations related to this aspect persist even in the modified system.

D. DISCUSSION AND CONCLUSION

The foregoing analysis shows that the data generated at sub-centres and at PHCs are of limited value both because of their incompleteness and poor quality. One major weakness of the whole system is the absence of valid denominators (i.e. total target population for specific services) which prevents the computation of the proportion covered under individual schemes. Hence the first step for improving the MIS will be to create a data base for each village enlisting the target population for various schemes. Under the existing system, it is achieved to a certain extent by maintaining and updating the Eligible Couple Register (ECR). However, as we have seen, most ECRs are neither maintained nor updated annually, largely because workers are over burdened with maintaining a large number of registers/records. Unavailability of stationery and printed registers/forms exacerbates the problem. It is therefore necessary that those elements which are not important for monitoring purposes should be dropped. Printed registers/formats should also be provided so that workers do not waste time in preparation of the proformae.

ESCAP's effort, in collaboration with the Maharashtra Government, is a commendable attempt and the system has tried to remove both the major bottle-necks in the existing MIS systems i.e. absence of valid denominators and heavy workload on the paramedical staff. The results of introducing this MIS are quite encouraging and perhaps for the first time the performance evaluation of the programme can be done on the basis of impact rather than based only on the extent of target achievement. It is encouraging to note that this model is now being implemented in the entire district. It is strongly recommended that, in the second phase, the data being generated from the family cards should be computerized.

The achievement of the computerized MIS system developed at Bavala is also very encouraging. While on the one hand it demonstrates that a computer-based MIS at block level is possible, it also shows that such a system can be quite user - friendly: specialized skills in handling computer are not essential to

use the data base. However, the cost of implementing such a system needs to be carefully examined. While computerizing the data base of the ESCAP project, lessons learnt from the Bavala experiment should be utilized to the maximum.

The modified new system of MIS which is being currently implemented on an experimental basis in four states of India with financial assistance from WHO, is also interesting. However, while it reduces the workload of health workers by introducing a few comprehensive registers, and ensures timely flow of information, it has improved the quality of data and or effective utilization. All the major drawbacks because of the absence of base data on target groups (denominator) persists and thus reduces its usefulness.

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Chapter 12

MANAGEMENT INFORMATION SYSTEMS FOR THE 1990s: CONCLUSIONS AND RECOMMENDATIONS OF THE SEMINAR

A. DEFINITION AND NATURE

All organizations need information to support decision-making. The content of information and the ways in which this information is gathered, analyzed and made available for management decisions constitutes a management information system (MIS). The MIS is not the sole basis for organizational decisions. Political priorities and cultural constraints and many other factors may exert strong influences on decision-making.

Different levels of an organization have distinctive information needs. At the policy and planning level, the priority requirements concern assessment of past achievement and its determinants and the setting of new directions and targets. At the supervisory level, the main information needs relate to assessment of the relative performance of areal sub-units and particular components of the action programme. At the operational level, information is particularly required to identify the market for products and services provided by the organization and to serve this market in the most efficient manner. Thus a good comprehensive MIS has to be responsive to all these diverse information needs.

The contents of a MIS should reflect the needs and objectives of the programme. It includes not only internally generated information on input, process and output but also a wider range of information on the determinants of changes and constraints to the programme.

Information for decision-making in family planning and/or health organizations comes from a variety of sources, the most important of which are:

(a) data generated regularly from organizational investments and activities (service statistics);

(b) surveys of the general population, of special groups (such as adolescents or low income groups) and of clients;

(c) qualitative research studies, such as focus group discussions with potential clients, observations of clinic procedures and ethnographic studies;

(d) experimental and quasi-experimental research designed to test the feasibility or relative effectiveness of different procedures; and

(e) cost-effectiveness and impact studies.

B. PROBLEMS AND CHALLENGES FOR FAMILY PLANNING MISs

Asian family planning policy priorities and programme directions have changed in appreciable ways over the last decade or so. Some of these changes pose formidable challenges to traditional MISs.

There is a trend towards operational and/or administrative ***Integration*** of family planning and other development programmes, not only maternal and child health but also other health programmes. Decision-making processes are complicated by the simultaneous pursuit of multiple objectives, and, similarly, information needs become much more complex. Clear measurement of family planning inputs may no longer be simple because of the existence of multi-purpose infrastructure and staff. The number of potential output indicators proliferate, and priorities have to be established in order to reduce them to a number that can be absorbed by intermediate and senior managers. These problems are exacerbated when integration is achieved at the operational but not at the higher levels. In this situation, managers are unwilling to reduce their specialist information requirements and thereby impose a huge burden on operational staff for recording and reporting procedures, with serious consequences for service provision.

The growing diversity of sources of family planning information and supply, including privatization, also complicates information systems. Input and output information derived from the government programme alone provides an incomplete account that may be misleading. Yet the acquisition of relevant, reliable and comparable information from non-government organizations, including the commercial sector, is rarely easy and usually costly.

Increasing attention is being paid to the quality of family planning services that clients receive. Quality has many different dimensions (e.g. technical competence of staff and provider under- standing of client needs). Few of these can be monitored by routine recording and reporting systems. They require special studies, including the deployment of qualitative methods of inquiry and, perhaps, the involvement of independent agencies that have not hitherto formed a regular part of MISs.

Alongside the growing concern for quality is recognition that inequities in adequacy of services should be reduced. Special groups, such as adolescents

and ethnic minorities, may require different programmes, that then may generate specialized information needs.

Decentralization of government family planning services, now taking place in some countries, may also generate different needs for information and new skills for middle level managers, thus further changing the focus of and scope MISs.

The desirability of community participation in deciding local family planning and health priorities is now more commonly acknowledged. Its implications for MISs require careful consideration.

The substantial degree of success achieved by many Asian programmes creates demand for new types of information. High levels of current and ever use of contraception imply that output measures based solely on new acceptors are no longer adequate. In addition, or instead, output needs to be defined in terms of contraceptive prevalence, use-effectiveness and impact on fertility. These data are difficult and time consuming to collect in a reliable form.

Inadequate analysis of data is common. The last decade has seen radical development of analytical techniques, such as multi-level analysis and hazards models. Transfer of these skills and in- service training of research staff is required in order to exploit this ever-increasing methodological sophistication, after establishing each method's suitability in specific situations.

Some problems of MISs are not new but nevertheless demand restatement. The validity and relevance of information are still causes for concern. Several factors influence data validity: excessive emphasis on achievement of unrealistic quantitative targets; inadequate supervision and verification procedures; and the use of indicators that are hard to verify. The irrelevance of much information for decision-making may reflect lack of consensus among programme managers, unclear objectives of the programme and unwillingness to change redundant MIS procedures.

The timeliness and flow of information is often far from optimal. Delays in upward reporting may stem from communication difficulties, seasonal factors and the low priority attached to the MIS. Adequate feedback from higher to lower levels and from the operational level to the community is sometimes lacking. Equal importance should be attached to feedback as to upward reporting.

The collection of regular input information on staff, material and methods is still clearly deficient in many countries. This type of information is generally available but seldom reported on a regular basis.

Adequate use of information by managers is a perennial concern. In many countries, the volume of information collected and reported greatly exceeds managerial ability or capacity to make use of it. A complex set of factors is responsible for this situation. Inappropriate delegation of responsibility but not authority is one such factor. Limited cooperation and communication between programme and information managers is a second factor. Poor presentation of information and inadequate processing and interpretative skills represents a third factor. Cultural traditions are also relevant. In societies where oral communication takes precedence over the written word, the latter may be neglected. Finally, the utility of MIS may be inadequately understood by programme management.

The introduction of new computer technology, while greatly facilitating the processing and presentation of information, brings attendant difficulties. Insufficient preparation, staff training and software development impede the successful exploitation of the huge potential of personal computers. In countries where these barriers exist, they should be addressed urgently.

Collection of information, collation, processing, flow, and presentation costs money. Not many countries provide separate budgetary allocations for information systems. Even in countries where such provision exists, the financial resources allocated are not commensurate with the requirements. There is a need, therefore, to make separate cost estimates and to create distinct budget line items for information systems. Adequate and separate allocations will considerably strengthen present systems and the development of new systems.

C. RECOMMENDATIONS

Just as successful family planning programmes require strong political commitment, good MISs require continuous firm commitment from programme managers. This commitment involves allocation of sufficient resources and staff, constant monitoring of the strengthens and weaknesses of the MIS, and involvement of staff at all levels in continually improving the MIS.

Integration of MCH and family planning in many countries has increased the complexity of information systems. The extent of integration varies from country to country. To design new systems, there is a need to: (1) review integrated systems; (2) bring about necessary and appropriate modifications in structures and functions at various levels of organization; (3) define key indicators; (4) develop systems for collecting the data; and (5) choose appropriate techniques and technologies.

MISs for programme planning and implementation should have an optimal number of indicators. These indicators should be jointly selected, keeping in

mind programme objectives at each level, by programme managers, MIS staff and experts co-opted for the purpose. Each of the key indicators should be clearly defined and standardized to ensure their uniform use in all parts of the country. This will help to evaluate strengths and weaknesses of the programmes.

In several countries, many successful small scale field trials have been carried out using new management information systems. Additional field trials should be encouraged. Further, application of these new systems in larger areas should be tried.

MIS staff should make efforts to identify, strengthen and use information from other sources in addition to service statistics. In particular, the increasing concern with the quality of services will generate a need for innovation methods of evaluation. More effort should also be made to develop comprehensive data bases through the use of networks and other techniques.

More emphasis should be given to build up capabilities at appropriate levels to monitor programme performance at regular and frequent intervals. The seminar recognizes the great necessity to train MIS staff and programme managers at various levels, in order to enhance their capabilities to comprehend and utilize information.

To make decision making more effective, management information systems should incorporate input, process, and output indicators. Equal attention to each of these three aspects is needed to make the information systems comprehensive.

Recognizing the need for wider participation, the MIS should assist local communities in programme planning and management.

Computerization has tremendous potential in improving MISs. To exploit this potential, careful decisions have to be taken regarding the level and extent to which these new technologies can be adopted. Huge efforts in staff training, maintenance of equipment, and development/application of softwares will be required.

The growing complexity of the programmes and MISs have created a whole range of new technical problems which have not yet been fully resolved. Cost-effectiveness assessment of integrated programmes is one area where there is a great need to improve methodology. The solutions have to be found by continued collaboration between national governments, private sector, universities and international organizations such as UNFPA and ESCAP.

Within countries, greater efforts should be devoted to maximizing information flows within the programmes. Communications should occur both

vertically (up and down) and horizontally. Greater access to MIS information is also needed for non-governmental programme agencies and scholars. This process should enhance utilization of information and may lead to new insights into determinants of programme performance. Successful examples of MIS should be fully disseminated both within and between countries. At the international level, UNFPA, ESCAP and other agencies should attempt timely dissemination of new MIS developments.

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