CHAPTER II

REVIEW OF LITERATURE

This chapter reviews the available literature on the problem of nutrient deficiencies (iron and vitamin A) and their functional consequences, the supplementation programmes to combat these deficiencies and finally the evaluations of the management and impact of these programmes using qualitative and quantitative methodologies. The review is arranged under the following heads:

I. Measures to overcome iron and vitamin A deficiencies : Supplementation programmes.
II. Implementation of deficiency control programmes in India.
III. Differences in nutrition and health profile among urban and rural populations - Need for comparative studies.
IV. Need for focussing on management of deficiency control programmes.
V. Evaluation of management and impact of nutrition programmes.
VI. Use of qualitative and quantitative methodologies in evaluation of nutrition programmes.

Prevalence of iron deficiency: Iron deficiency is the commonest nutritional disorder in the world affecting over one billion people worldwide (ACC/SCN 1992). Hemoglobin surveys in different parts of India reveal that 40-90 percent of the pregnant women in India suffer from anemia (NIN 1994) while 63 percent of children between the ages of 1 to 3 years and 44 percent of children between the ages of 4 to 6 years suffer from anemia in India (ICMR 1986).

Anemia in infancy and childhood is associated with poor cognitive abilities, impaired motor development and behavioural changes which are reversible on iron supplementation. It is associated with reduced work capacity and mental performance and increased susceptibility to infection (ACC/SCN 1991b, INACG 1989). It is estimated that 20 percent of maternal mortality is due to anemia directly or indirectly (McGuire 1993).

Vitamin A deficiency: Vitamin A deficiency is the largest single cause of the total of 40 million people estimated worldwide to be blind (Kupfer 1987). WHO (1992) reported that in 1991, nearly 14 million preschool children had eye damage due to vitamin A deficiency. Around 10 million of these children are located in Asia.

Severe vitamin A deficiency (keratomalacia) has very high fatality rates (60%) but even sub-clinical deficiency is associated with a 23 percent increase in preschool mortality (McGuire 1993). Of the survivers of severe vitamin A deficiency, 25 percent remain totally blind and 50-60 percent partially blind (IVACG 1981). Histopathological changes in epithelial tissues of the respiratory, urinary and gastrointestinal tracts, growth

retardation, defective bone formation and other developmental abnormalities and impairment of immune function have been reported (Sommer et al 1984, McLaren 1978 and McLaren 1966).

I. MEASURES TO OVERCOME IRON AND VITAMIN A DEFICIENCIES

Long, medium and short term solutions to the problems of nutrient deficiencies are available. The long term solution is the improvement of diets with the inclusion of food sources rich in micro-nutrients. Food fortification with the nutrients is a medium term solution while a short term solution is supplementation. In areas where the magnitude and the severity of nutrient deficiencies is high, supplementation is the most immediate solution to respond to the urgency of the situation.

Supplementation Programmes to Combat Iron and Vitamin A Deficiencies

Iron Supplementation Programmes:

Besides India, iron supplementation programmes have been in operation in several countries in the world. Some of these are described in Table (i) (ACC/SCN 1991b).

Vitamin A supplementation programmes

Three basic delivery systems have evolved for vitamin A supplementation in the community (West and Sommer 1987, WHO 1982). These are:

(a) Medical (Therapeutic) system: The medical system involves treating children with xerophthalmia as well as those children who are ill and come to hospitals, clinics and health centres. This therapeutic measure is the first intervention in an endemically vitamin A deficient area.
(b) Targetted (Prophylactic) system: The targetted delivery system attempts to prevent xerophthalmia among high risk groups in the population who present to the health care system.
(c) Universal (Prophylactic) system: All children of defined age (and other designated groups) receive periodic large doses of vitamin A at established intervals. Vitamin A distribution programmes in Bangladesh, Indonesia and India are examples of universal delivery system (WHO 1982).

Bangladesh: The blindness prevention programme in Bangladesh was started in 1973. It involves distribution of vitamin A capsules containing 200,000 IU (now also contain 40 IU of vitamin E) to rural preschool age children of 6 months to 6 years of age. The distribution is carried out by multipurpose primary health care workers who make house to house rounds and distribute the capsules every six months (Darnton Hill et al 1988, WHO 1982).

Indonesia: In Indonesia, the distribution of capsules of 200,000 IU vitamin A at 6 monthly intervals to preschool children (1-6 years) is carried out through various types of community outreach programmes in different geographical areas (WHO 1982).

TABLE (i). IRON SUPPLEMENTATION PROGRAMMES IN DIFFERENT REGIONS OF THE WORLD

S No:	Programme aspects	Thailand	Indonesia	Burma	Caribbean	Zimbabwe
1	Coverage	Varin Chamrab District of Ubon Province 840 Pregnant Women	3.5 m. Pregnant Women	Entire Country 150,000 Pregnant Women reached	6 m. people in 17 countries targeted to Pregnant Women, Lactating Women and Preschool Children	Entire country 356,000 Pregnant Women targeted
2	Distribution Points	Hospitals and Clinics of Public Health Infrastructure	Community Health Centres, Schools, Plantations Factories	Primary Health Care Centres	Health Centres (some in hospitals)	Health Centres
3	Monitoring	Blanket Coverage	Blanket Coverage	Blanket Coverage	Monitoring and Screening takes place (11 g/dl/ 10 g/dl used as cut-off points in different countries)	Blanket Coverage
4	Distribution of Tablets	2-4 weeks supply per visit	4 weeks supply per visit + nutrition education	4 weeks supply per visit + education	4 weeks supply	4 weeks supply per visit

The operational aspects of iron and vitamin A supplementation programmes in India have been summarized below (Table ii).

TABLE (ii). SUPPLEMENTATION PROGRAMMES IN INDIA

S No	Aspects of Supplementation Programmes	Iron	Vitamin A
1	Target group	* Pregnant Women * Lactating Women * Children 1-12 Years of Age	Preschool Children of 1-5 Years of Age
2	Inputs	* Syrup (20 mg elemental iron + 0.1 mg folic acid) * Small tablets (20 mg elemental iron + 0.1 mg folic acid) * Large tablets (60 mg elemental iron + 0.5 mg folic acid)	Solution containing 100,000 IU in 1 ml
3	Dosage and Frequency	1 teaspoon syrup or 1 tablet per day for 100 days	1 teaspoon (2 ml) every 6 months
4	Distribution points	Primary Health Centres and Sub-centres in rural area, Family Welfare Centres in urban area, Anganwadis under Integrated Child Development Scheme	Same as iron

Sources : Government of India (1989) and Vijayaraghavan K and Pralhad Rao (1978).

II. IMPLEMENTATION OF DEFICIENCY CONTROL PROGRAMMES IN INDIA

The iron and vitamin A supplementation programmes are implemented through the Health Services Infrastructure in India. Besides, these programmes also form an important component of maternal and child welfare programmes like the Integrated Child Development Services (ICDS) and the Family Welfare Programme. Family Welfare Programme includes the components of family planning and maternal and child health.

Family Welfare Programme in India: MCH Services (Government of India 1991)

One of the important aspects of the family welfare programme in India is the promotion of health of mothers and children. It creates a sense of security in the minds of parents that the children born will live a healthy life which in turn will contribute greatly to the acceptance of small family norm as a way of life. The health care for mothers and children has been provided as non-plan activity of the States, and the States and Union Territories are required to furnish half yearly reports regarding antenatal and postnatal care of mothers as well as infants and preschool children. The prophylaxis schemes launched include prophylaxis against nutritional anemia and prophylaxis against blindness due to vitamin A deficiency.

Health system infrastructure in India: The health system infrastructure in India at Centre and State level, at Division and District level and at sub-district level (in both rural and urban areas) is presented in Figure 1 (NIHFW 1987, NIHFW 1986, Roy 1985).

Centre and State level: At the central level, the Minister of Health and Family Welfare is responsible to the Government for all health matters. Executive authority is vested in the Secretary of Health and Family Welfare. The Directorate General of Health Services (DGHS) serves as the technical arm of the Health Ministry and implements health programmes on its behalf. The Director General advises the Minister of Health and Family Welfare, coordinates health programmes and supplies technical information. At the State level, the administrative structure is similar to that of the Central Health Ministry.

Division and District Level: In some States (e.g. Madhya Pradesh and Uttar Pradesh) there is a health organisation at the divisional (zonal) level. A division is an intermediate tier between the State and Districts. The officer in-charge of the division (Deputy or Joint Director of Health Services) coordinates the health programmes in the districts under his/her jurisdiction. In each district, there is a district health organization headed by the Chief Medical Officer of Health or Civil Surgeon, assisted by other officers responsible for public health, family planning and medical services. In each district there is a district hospital and a variety of additional hospitals for specialised care and medical education.

Sub-district level

Rural : Next to the district level, there is an administrative unit of blocks and one Community Health Centre has been envisaged for every 100,000 population in the rural areas. Under a Community Health Centre, there are Primary Health Centres (PHC) at sector level, each PHC envisaged for every 30,000 population. Each PHC has one Medical Officer incharge, other medical officers, one Block Extension Educator, Health Assistants (male and female) and Multipurpose Workers (male and female) along with other ancillary staff like compounder and laboratory technician. The PHCs have a number of Sub-Centres (SCs) manned by two Multipurpose Workers (one male and one female) for every 5000 population (3000 population in hilly and desert areas and difficult terrains). Sub-Centres are the most peripheral health institutional facilities. At village level, there are Community Health Guides (volunteers from the community) and trained Dais' (traditional birth attendants) for every 1000 population. These village level functionaries are to receive technical support and continuing education from the Multipurpose Workers posted at the Sub-Centre.

Urban: In the urban areas, there are Family Welfare Centres providing primary health care and family welfare services. There are Medical Officers, Health Assistants (M & F) and Multipurpose Workers (F) in each Centre.

The Integrated Child Development Services (ICDS) Programme

The ICDS encompasses all the three major components of integrated human resource development, namely: health, nutrition and education (Gopalan 1988). ICDS is today the largest and the longest duration national programme for the children in the world (Tandon 1990), operating in about 1925 blocks in different States of the country (Gujral and Gopaldas 1992).

ICDS provides a package of services to children in the 0-6 years age group, expectant and nursing mothers and women between 15-44 years of age. Nutrition interventions such as supplementary feeding, iron and folic acid supplements and vitamin A supplement are major components of the ICDS programme (Central Technical Committee [ICDS] 1990). The focal point for the delivery of services under the ICDS is the Anganwadi which is run by an Anganwadi Worker (AWW) and a helper. In the health sector of ICDS is a Medical Officer who supervises the ANM in the delivery of services such as immunization and distribution of iron and vitamin A supplements to beneficiaries.

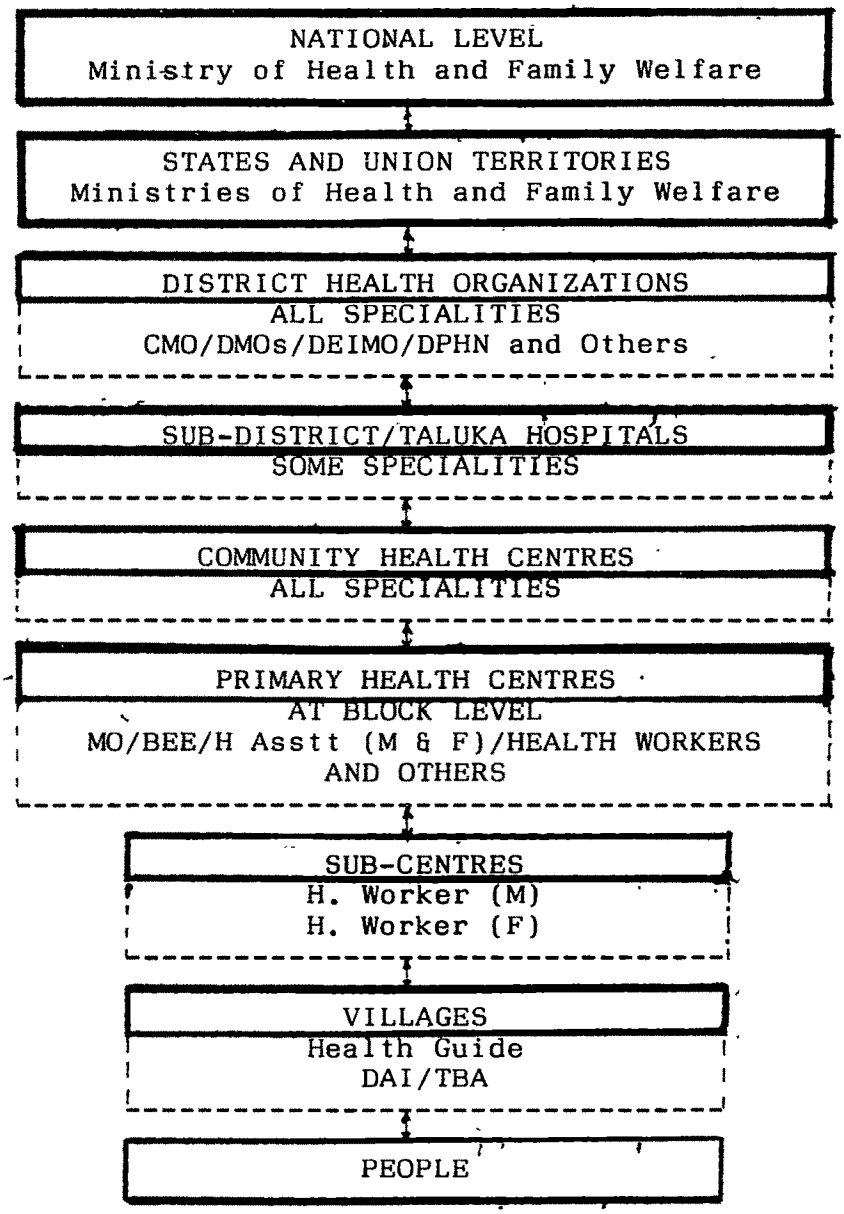
III. DIFFERENCES IN NUTRITION AND HEALTH PROFILE AMONG URBAN AND RURAL POPULATIONS - NEED FOR COMPARATIVE STUDIES

With rapid urbanisation and overcrowding in cities, the number of urban poor living in conditions of poor hygiene and environmental sanitation, abject poverty and poor access to basic services is increasing. About 30 percent of the population of metropolitan cities of India lives in slums. In Bombay, the slum

dwellers constitute about 58 percent of the total population. The seriousness of the nutrition problem among the urban poor usually goes unnoticed as in many cases they are not officially registered (Patel 1986).

FIGURE 1 : HEALTH SYSTEM INFRASTRUCTURE IN INDIA*

HEALTH SYSTEM INFRASTRUCTURE IN INDIA



*Source: (NIHFW 1987, NIHFW 1986b, Roy 1985)

LEGEND: The solid boxes represent the various levels of health services organization in the country. The type of health and family welfare personnel that are available at different levels are given in the boxes marked by dotted lines.

National surveys by the National Nutrition Monitoring Bureau (NNMB) in India on food consumption and nutritional status of urban and rural populations in the country have shown that the dietary and nutritional status of the urban population groups exhibited a clearcut socio-economic differential, with the slum dwellers registering the poorest levels of nutrient consumption and nutritional profile which were comparable with that of the rural population (Pralhad Rao et al 1986). According to Kapil (1990), urban slums and tribal areas should be given priority coverage under vitamin A and anemia programmes according to Government of India guidelines.

Studies carried out by NFI (1988b) on over 5000 women of poor income groups drawn from urban slum populations of Bombay, Madras and Calcutta revealed that 16 percent of the mothers in Calcutta, 14 percent in Madras and 10 percent in Bombay had hemoglobin levels less than 8 gram percent. High proportion of babies of low birth weights were reported in all the three cities (19 to 28 percent). In a study on the nutritional and health status of preschool and school children in urban slums of Madras, it was found that both the groups of children were deficient in calories and proteins by nearly one-third of their RDA in spite of nutrition supplementation and antipoverty schemes. They also had high incidence of Bitot's spots (Gnanasundaram and Santhanakrishnan 1986).

In rural areas, health problems are more acute due to poverty, illiteracy, lack of health care, poor living conditions and deep rooted harmful beliefs and customs (Soni et al 1980). This study, carried out on 1000 under-five rural children in Rajasthan, revealed that malnutrition was present in more than 80 percent of children while there was a widespread prevalence of vitamin A and iron deficiencies.

While the urban areas contain only 20 percent of the total population, 75 percent of all inputs in health are deployed in these areas. Further, the existing Primary Health Centre and Subcentre complex in the rural areas has been able to provide minimal health care to only 15-20 percent of the total rural population (Gandotra and Ojha 1986).

In a study on health and nutrition conditions in the developing world, Basta (1977) found that much more information was available on rural than on urban areas. Further, the rural environment is a far more homogeneous milieu and hence there is less variability in data for rural than there is for urban groups. He reported that in many cases the intra urban differences were greater than those between urban and rural.

There is clearly a need for comparative studies investigating the management of nutrient supplementation

programmes in urban and rural areas; but such studies are scarce in literature.

IV. NEED FOR FOCUSSING ON MANAGEMENT OF DEFICIENCY CONTROL PROGRAMMES

Developing countries have the advantage that the most urgent priorities are reasonably clear. The need for modern management techniques for countries whose present health facilities are minimal is in terms of adequate diagnosis of those problems that merit highest priority and having regard to the contribution that reduction of disease can make to the general socio-economic development (WHO 1974).

Management is an integral part of human activity and as such, each and every individual has to perform certain managerial functions. In the context of health services development, each and every functionary in the field of health has to have varying degrees of understanding in relation to the various components of managerial processes (Gupta et al 1986).

The relationship between technical and managerial skills required at various levels has been depicted in Figure 2. One of the problems that has posed an enormous challenge to the development of health services in India is the limited use of modern management methods and techniques in health services, including detailed programme planning (Gupta et al 1986).

The discrepancy between the promises and achievements of low cost rural health care results primarily from inadequate management. The problems in large scale programmes include breakdown in management and logistics which may be due to inadequate transport facilities or lack of personnel and inventory management, lack of continuing education and inadequately executed administrative and technical supervision. Supportive activities such as logistics of supplies, appropriate management and quality of supervision are critically important (World Bank 1980).

With the increasing quantitative and qualitative demands on health services and with the continuously rising cost of providing health services, managing the health resources becomes more complicated and the use of efficient and effective management techniques becomes indispensable to enable personnel working at all levels of the health system to make better decisions (WHO 1974).

It is being gradually realized that the difficulties in meeting the health needs of the community are increasingly dependent upon the abilities to design and manage the health care delivery systems. Application of management principles to health care problems would permit greater achievement of goals through better use of the limited resources available - man, money and material (Roy 1984). According to Berg (1989), our policy understanding of what to do is in most places far ahead of our understanding of how to do it. There are many good policies and programmes in place but their implementation is often appalling.

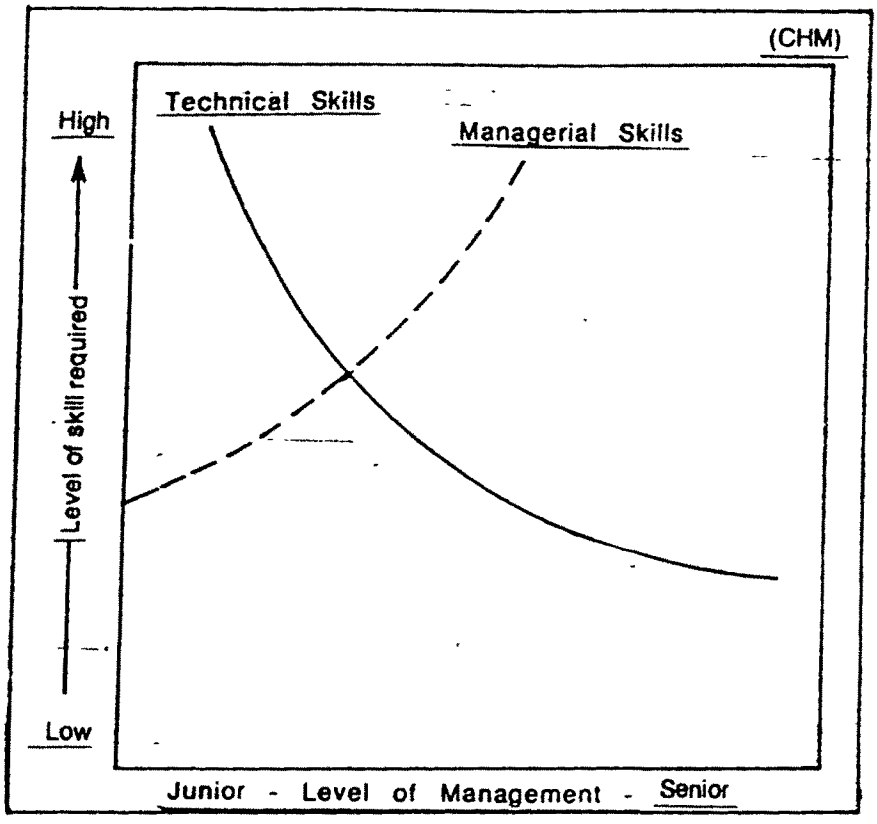


FIGURE 2

CHANGING PATTERNS OF SKILLS REQUIRED TO MATCH PRIMARY WORK SHIFT *

* Source : Gupta et al (1986)

Management cannot continue as a second fiddle in the orchestra for implementing human development. It should be included among the main instruments (Horwitz 1991).

Management in nutrition programmes

It is increasingly being realized that adequacy of resources and their use in a technically sound programme are not enough to ensure the success of a nutrition programme. The management of a programme determines its success or failure to a considerable extent. A review of the failure and success stories in nutrition programmes over many years has shown that a high percentage of failures has been due to faulty management (Bagchi 1990).

Many nutrition programmes in the world have failed to overcome fundamental, technical, administrative and financial constraints and consequently represent an inefficient use of scarce resources. Unskilled management has been a major factor underlying ineffectiveness of programmes (ACC/SCN 1991a).

McMahon et al (1980) have described management as effective and efficient use of resources to achieve predetermined objectives. The three functions of management i.e. planning, implementation and evaluation form a continuous cycle in which each function is influenced by the other. Figure 3 presents a framework of management in the context of health services. Management requires decision making at each stage.

Planning: Planning is the first function of management. The planning decisions deal with objectives, activities and resources. Stating what is to be achieved is setting an objective. Objectives are split into operational goals or targets for classifying what is to be achieved. Activities are required to achieve objectives. Broadly, activities can be classified into three types:

(a) Service activities (for example, delivery of inputs)
(b) Development activities (for example, training of manpower)
(c) Support activities (for example, supplies of inputs).

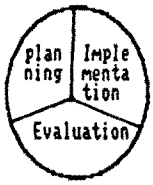
Activities require mobilisation of resources which include manpower, materials and money.

According to Bagchi (1990), planning involves selecting and outlining the courses of action that a programme will follow at the central, intermediate and peripheral levels over a given time frame.

Implementation: Implementation decisions deal with deployment of manpower, allocation of resources and execution of activities (McMahon 1980). As Bagchi (1990) has further stated, organizing manpower involves establishing the roles of the people working in a programme according to plan so that they contribute individually to group effort. Activities are assigned to individuals best suited to carry them out, authority is delegated to them to carry out these activities and horizontal and vertical coordination within the organizational structure is established.

FIG.3 MANAGEMENT FUNCTIONS AND THE COMPONENTS OF EACH FUNCTION

MANAGEMENT FUNCTIONS



(a) PLANNING FUNCTION OF MANAGEMENT

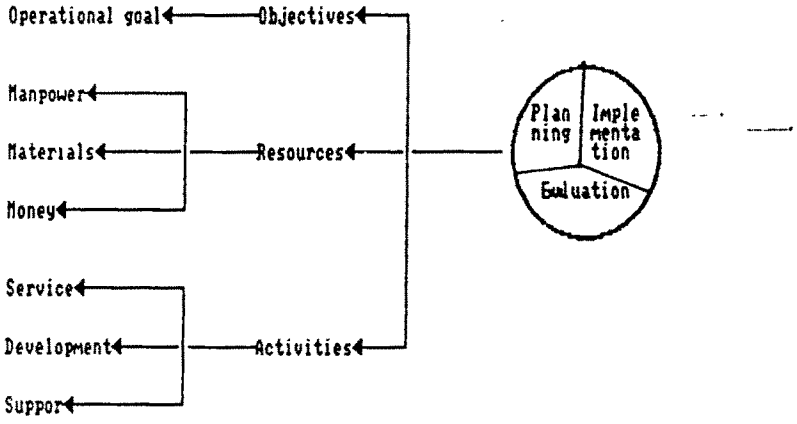
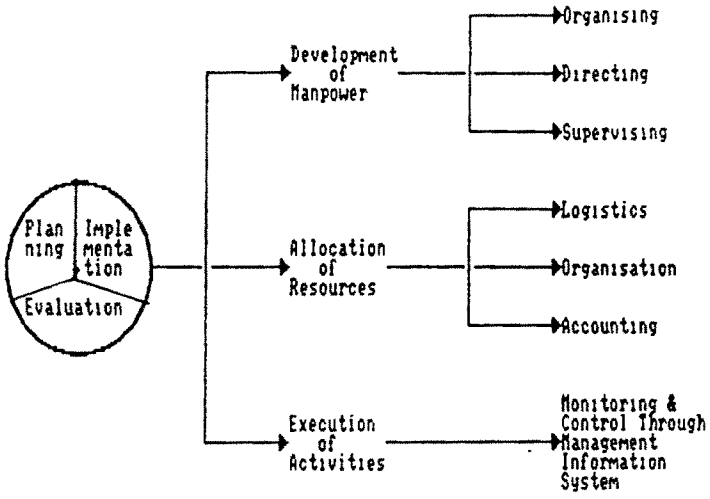
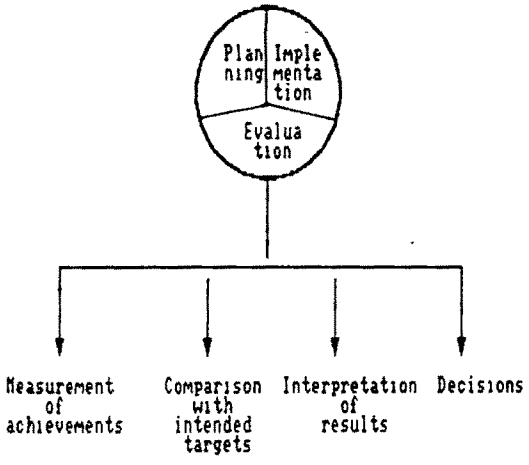


Figure 3 contd.

(b) IMPLEMENTATION FUNCTION OF MANAGEMENT



(c) EVALUATION FUNCTION OF MANAGEMENT



Evaluation: Decisions concerned with evaluation deal with effectiveness (the degree to which the stated objective is being achieved), efficiency in the performance of activities, and economy (substitution of scarce or expensive resources with other resources) (McMahon et al 1980).

Viewed from another perspective, evaluation of a programme consists of two major components:

(a) Process (implementation) evaluation
(b) Impact (outcome) evaluation.

A careful process evaluation can give a reasonable answer as to the effectiveness of nutrition programmes (Bagchi 1990).

V. EVALUATION STUDIES OF MANAGEMENT AND IMPACT OF HEALTH AND NUTRITION PROGRAMMES

This section includes a review of studies pertaining to :

(1) Training and knowledge, attitudes and practices of health service personnel
(2) Work organization and time allocation : Emphasis on Family Planning Programme (FP)
(3) Logistics : Materials management
(4) Transport and housing facilities
(5) Incentives and disincentives
(6) Supervision
(7) Target setting
(8) Management Information System : Maintenance of records
(9) Coverage of beneficiaries
(10) Knowledge and awareness of beneficiaries.

1. Training and knowledge attitudes and practices of health service personnel

Public health is often considered a labour intensive industry because of its heavy dependence on manpower to deliver its technology to the public. The availability of qualified personnel in adequate numbers and their distribution is a pre-requisite of health programmes (WHO 1973).

A major management problem at district level in India is a lack of clear perception of the goals of health programmes (NIHFW 1984). A holistic view for planning in health in terms of looking at training, service and research functions is lacking within the health sector in India. One of the serious problems for suboptimal functioning of personnel at different levels has been their inadequate preparation during basic, preservice and inservice training particularly in relation to their job requirements (Gupta et al 1986).

Sixty percent of the 69 Multipurpose Workers (MPWs) in an evaluation of MPW scheme in Gujarat reported that the MPW training given to them did not generate sufficient confidence and satisfaction in them (Gandotra and Patel 1987). Further, lack of training in extension methodology to the Block Extension Educators (BEEs) and supervisors in health centres was found to be one of the important weak links in the diffusion of innovations in the health and family welfare programme (Gandotra and Ojha 1986). Similarly, vital gaps in the knowledge of Anganwadi Workers (AWWs) in the ICDS programme were revealed in a countrywide study of ICDS, which were attributable to deficiencies in training (Gopalan 1988). The findings of an USAID assisted ICDS Impact Evaluation Project in Panchmahals (Gujarat) and Chandrapur (Maharashtra) revealed that the coverage for nutrition and health services by AWW was 2-4 fold higher if the AWW had an adequate nutrition and health knowledge or was receiving regular guidance from the ANM (Gujral and Gopaldas 1992).

According to ACC/SCN (1991a), weak training is an important factor underlying ineffectiveness of many nutrition programmes throughout the world. This report, based on a workshop on controlling iron deficiency, recommended that additional training of health and other service delivery personnel is required in the prevention and treatment of anemia. It should include management, surveillance, communication with clientele and screening. Several of the programmes reviewed in this workshop were found to be constrained in some degree by inadequate or inappropriate training.

In a study of training component with respect to nutrition programmes in Himachal Pradesh, it was observed that health workers and health supervisors had not been given any training for nutrition programmes (Sharma et al 1986).

ICMR (1989) has reported that the knowledge of functionaries regarding various aspects of iron programme in different states of India was less than the desired level. There is no regular training and orientation programme for functionaries exclusively for the iron supplementation programme at the district level in the 11 states of India which were included in this comprehensive evaluation. In 31 percent of the districts, training for the iron programme was included in the periodical training courses for National or State health programmes. It was found that there was no uniformity in these training programmes.

Thus, there is a need to give priority to the education and training of functionaries with respect to the control of iron deficiency (ACC/SCN 1991b). There should be an active educational effort to inform the involved personnel about different aspects, especially the importance and the benefits of the programme and its place in the health delivery system (INACG 1989, INACG 1977).

As regards vitamin A, much of the effort by health personnel to inform the community about vitamin A periodic dosing programmes in various countries has lacked impact owing to poor functional competence in those responsible (WHO 1982). An evaluation of Vitamin A Programme in India has revealed that many of the Medical Officers and Auxiliary Nurse Midwives were not properly oriented to some of the aspects of the programme. The programme guidelines were not being adhered to. For example, the distribution was not being done on a crash basis and extension approach was not being followed (Vijayaraghavan and Pralhad Rao 1982).

2. Work organization and time allocation : Emphasis on Family Planning Programme (FPP)

Lack of planning for health services at the Primary Health Centre level and inadequacy of work plans is a major problem influencing the effective functioning of the Health Centre (NIHFW 1984).

A study of the functioning of ICDS has revealed that the time spent by the Anganwadi Worker (AWW) on a task is not necessarily related to its actual importance. But the AWW does

not have the knowledge to correct this anomaly. Further, some components of the programme are emphasized excessively to the point that the concept of integrated service is lost sight of (Gopalan 1988).

A review of the iron supplementation programmes in various countries has shown that control of iron deficiency was felt by many functionaries to be peripheral or expendable in the crowded agenda of activities. They had many competing responsibilities which had to be prioritised. This relates to Health Centre Management and a system of organising an achievable number of daily tasks (ACC/SCN 1991b).

An evaluation of vitamin A programme in India has revealed that the poor coverage under the programme was due to reasons other than heavy load of work. However, in one state, heavy load of family planning work was stated by the functionaries as a reason for poor coverage. In this study, data was collected using a specially designed questionnaire (Vijayaraghavan and Pralhad Rao 1978).

Ratanjeet (1987) studied the functioning of a PHC in Mandla district of Madhya Pradesh. Information was gathered by conducting interviews, by making observations for 7 days at the PHC, and by reviewing records of the PHC. He reported that there was a lot of pressure' on the MOs of PHCs to achieve family planning targets. Most of the time in the PHC monthly meetings was spent by MO and BEE on instructing workers to bring cases of sterilisation. Emphasis on family planning targets to the relative neglect of other duties in Uttar Pradesh and Bihar has been reported by Agarwal and Agarwal (1987). According to the investigators, Primary Health Care, instead of being operated as an integrated programme for promotion of health and wellbeing, is being reduced to a one point programme aimed at reducing births. As a result, health functionaries, pressurised by family planning targets, have learnt to largely neglect the other components of Primary Health Care.

A study of MCH and family planning links in urban and rural Tamil Nadu (Ramachandran 1987) showed that the ANM reached less than half (45%) of the 1200 women who were interviewed. She was able to give family planning services to all but gave some form of child health services to a negligible proportion (19%) of the population she served. This indicated that unless the Government health workers are adequately trained in the delivery of all round health services, it is unlikely that they will provide all maternal and child health services.

Chandok et al (1988) have reported a similar picture in the rural health centres of Punjab. The completion of family planning targets overrides in the minds of the workers. The entire monitoring and progress review is for it. The other functions are neglected by the workers.

An evaluation of Multipurpose Worker Scheme in Gujarat using interview technique (Gandotra and Patel 1987) revealed that while a majority of the workers were most interested in MCH activities,

family planning activities took up most of their time. Only about 3 percent of the workers identified nutritional activities as the most time demanding. Further, most of the MPWs stated that family planning activities were not only time consuming but that other programmes suffered because of it. Also, 84 percent of the workers mentioned that it was not feasible to complete the workload given to them and proper justice could not be done to all the activities as the number of activities was far too great and the time was far too less.

Gandotra and Ojha (1986) studied the time allocation of PHC functionaries in 3 districts of Gujarat. They interviewed the health functionaries and reported that out of the total 7 to 8 hours of working, on an average, 3 hours were spent by the functionaries on family planning and 1.6 hours on MCH activities. According to the investigators, sometime the functionaries implemented family planning activities at the cost of other programmes.

Thus, it appears that family planning programme is focussed upon excessively to the detriment of other MCH services including nutrient programmes. However, most of the data in the cited studies were collected primarily by conducting interviews. It is well-known that often what is said is very different from what is practised. Direct observations over a period of time - which give reliable first hand information - were very few.

3. Logistics : Materials management

The management problems relating to material resources at District and Primary Health Centre level in India were reported in a National Workshop on Health Management. These included inadequate knowledge of inventory control, shortage of supply and timely replenishment, inadequate availability of drugs and equipment and lack of proper space for storage (NIHFW 1984).

Information from various iron supplementation programmes in the world shows that overall supplies of iron are a frequent constraint. This arises not only from inadequate financing but from failures in procedures for assessing community requirements, ordering and scheduling deliveries, inadequate storage and monitoring the distribution at all levels of administration (ACC/SCN 1991b).

As regards the supply of vitamin A, the irregularity of supplies has been one of the major obstacles in all the countries implementing vitamin A periodic dosing programmes (WHO 1982). Supplies often arrive at the periphery only a short time before the expiry date. In several countries, the depletion of stocks occurs owing to insufficient notice being given by the management for processing requests and to administrative delays by both the Government and donor agencies.

Evaluation of iron supplementation programme in India has revealed that no uniform or definite criterion was followed at any level regarding the quantity of supply. There was no relationship between the quantity of supplements supplied and

targetted beneficiaries in a District or in a PHC. Supply of supplements upto the Subcentre level for distribution to beneficiaries took a long time by which time the age of supplements was shortened. The supply to Subcentres was irregular and mostly dependent on ad-hoc demand or availability at PHCs (ICMR 1989).

Gandotra and Ojha (1986) carried out a study in 3 PHCs in Bharuch district of Gujarat and reported that iron tablets were in short supply. Similarly, inadequate supplies have been reported as one of the reasons behind poor coverage and consequent programme ineffectiveness of the vitamin A programme in a comprehensive evaluation in India (Vijayaraghavan and Pralhad Rao 1982). Further, in an all India study sponsored by DANIDA on the functioning of National Programme for the Control of Blindness (Operations Research Group 1989), it was found that the supply of vitamin A solution met only 47 percent of the requirement. The supply was particularly poor in the East zone (30% of requirement) and North zone (40%) as compared to South zone (46%) and West zone (77%).

4. Transport and housing facilities

In India there are problems with respect to physical facilities in the health system. Health services infrastructure cannot function effectively and efficiently because residential facilities for staff, particularly in rural areas, are not available. Inappropriate locations in the context of geographical considerations, inadequate communication facilities and population dispersal compound this situation. Further, female workers may have to reside in insecure and inhospitable environments (Gupta et al 1986).

A study of the health services in Bihar and Uttar Pradesh (Agarwal and Agarwal 1987) has highlighted the fact that the mobility of the health personnel is seriously hampered for lack of transport facilities. In both Bihar and UP, vehicles are often withdrawn by higher-ups in district administration for their own work. The Subcentre ANM often does not reside near the Subcentre because either she does not have a proper residential building or considers it unsafe. Medical officers of the Primary Health Centres are often faced with the problem of non-availability of suitable residential accommodation near the PHC.

Singh and Kumar (1988) reported that vehicles provided to Medical Officer of Primary Health Centre are often stated to be used for family planning work; and rarely for supervision of other health programmes. Sharma et al (1986) observed in a study of management issues in nutrition programmes in Himachal Pradesh that due to lack of transport, particularly in geographically inaccessible areas, supervision was almost impossible.

In an investigation conducted in rural Gujarat, it was found that in all the 9 PHCs studied, the vehicles were used practically all the time for family planning work, especially in bringing cases for sterilization (Gandotra and Ojha 1986). The authors reported that 48 percent of the functionaries used

bicycle, bus, bullock cart or camel carts to reach their work area, 17 percent walked to their villages and 19 percent walked some distance and covered the rest by bus. Thus, many of them wasted their time and energy in walking rather than working. The investigators suggested the provision of bicycle or some other two wheeler to enable workers to utilize their time more effectively.

5. Incentives and Disincentives

Vitamin A and iron distribution are carried out as part of primary health care services provided at Government Health Centres in urban and rural India. Unlike family planning there are no incentives for workers specifically geared towards these two programmes.

According to West and Sommer (1987), the absence of any compensation or incentives may give the worker little motivation to maintain acceptable coverage under vitamin A programme on a consistent basis, although they concede that extra pay offers no guarantee of effective field performance in the face of multiple health responsibilities at the local level.

Monetary compensations are given to Gram Panchayats (village administration) from the Collector of the District on achievement of the Family Planning (FP) targets. The workers at PHC level get cash awards and the MO gets a gold medal for the best performance in achieving FP targets. Warning by MO to withhold salaries of workers in case of non achievement of family planning targets is also reported (Ratanjeet 1987).

Bhat and Dinesh (1988) reported that in a sample of 139 PHC functionaries in Karnataka, most of the PHC staff were in favour of incentives and disincentives for achievement and non achievement of family planning targets.

In contrast, 54 percent of the total of 700 male and female respondents surveyed in MP, mentioned that people would accept family planning even if incentives were discontinued, i.e. attitudes of people are a more important factor in acceptance of the programme (Population Research Centre 1988).

In a study carried out in PHCs of Gujarat, a majority of the functionaries (62%) emphasized that incentives play a great role in the acceptance of family planning. Less than 3 percent of the beneficiaries reported that incentives did not play any role in the acceptance of FP by them (Gandotra and Ojha 1988).

6. Supervision

Weak supervision is a frequently reported constraint in nutrition programmes in the world and a major factor underlying their ineffectiveness. Increasingly, it is being recognized that the supervisor's role is not only one of checking up' on lower level workers, but also one of conducting informal refresher training and of motivating performance (ACC/SCN 1991a).

Evaluations of vitamin A dosing programmes in different parts of the world have revealed that supervision was very often limited and sporadic, mainly because of the large number of programmes to be supervised (WHO 1982).

Lack of understanding the value of supportive supervision, employee guidance and counselling and lack of necessary skills in building and maintaining workers' motivation have been identified as some of the major management problems at district level in India (National Institute of Health and Family Welfare 1984). The supervisory practices conducive to the development of supportive supervision and team work have not developed to a desired extent (Gupta et al 1986).

A study carried out in three districts of Gujarat has shown that frequent interactions of functionaries with their supervisors was one of the major contributing factors in the better performance of Bharuch district in comparison to Bhavnagar and Banaskantha districts in terms of delivery of health and family welfare services. The immediate supervisors in Bharuch made about 5 visits per month as compared to 4 visits in the other two districts. The visits by the second level supervisors (district level officers) ranged between 2.4 visits in Bharuch to 1.6 visits/month in Banaskantha dist. (Gandotra and Ojha 1986).

7. Target Setting

The Government health programmes are monitored at central and state levels by comparing achievements against numerical targets. The simple equation is if targets are achieved it is presumed that work is progressing satisfactorily. There is hardly any effort to understand ground level realities and obtain feedback from clients. Most managers in the Primary Health Centres are satisfied with reports on paper (Mavlankar et al 93)

The MCH Division of the Ministry of Health and Family Welfare decides the national and state targets for Vitamin A and Iron programmes on the basis of budget allocated to it. Till 1989-90, targets were decided on the basis of past performance in terms of achievements. Since 1990-91, the population of the states has been the sole criterion for distribution of targets. It has been found that in some states like Maharashtra and Tamil Nadu, the targets were not distributed to districts according to population, with the PHCs distributing targets equally to all the Subcentres (Kapil 1990).

The targets fixed for women and children under the iron programme were found to be equal in all the states in a country wide evaluation of the programme. The determination of targets for pregnant, lactating and family planning acceptor women, and children between 1-11 years, varied in each centre. The basis for determining targets at district and PHC level could not be established (ICMR 1989).

8. Management Information System : Maintenance of records

According to WHO (1982), inaccuracies in record keeping of supplies cause problems in the implementation of vitamin A periodic dosing programmes in various countries. Poor maintenance of records of beneficiary coverage is often a major weakness.

In India, the multiplicity of records and reports and their maintenance, and lack of a proper and timely feedback (particularly downward), have been reported as problems in the Management Information System (MIS) operating at the PHC level (NIHFW 1984). Further, most workers think that the data are collected to check if they are doing their work and hence there is a tendency to inflate the numbers (Murthy and Satia 1976).

MPWs have been reported to find it difficult to maintain up-to-date records because record maintenance was time consuming; they found their total workload too heavy; there was lack of time and nonavailability of stationery (Gandotra and Patel 1987).

Maintenance of records with respect to receipts of vitamin A and coverage of children has been found to be far from satisfactory in an evaluation of the programme in 9 States in India (Vijayaraghavan and Pralhad Rao 1978). Monitoring of the programme had become almost impossible as a result of poor record maintenance (Vijayaraghavan and Pralhad Rao 1982). Similarly, poor maintenance of records of iron programme at Subcentre, PHC as well as district level was reported in the comprehensive evaluation of iron programme in India (ICMR 1989).

Thus, the MIS in primary health care appears to have several weaknesses. More detailed studies to pinpoint the factors underlying these are required. Further, the meetings between supervisors and workers are also an important component of MIS which do not seem to have been given the attention which they deserve in the studies reviewed.

9. Coverage of Beneficiaries

Poor record maintenance makes it difficult to assess accurately the proportion of eligible beneficiaries covered under nutrition programmes and other public health care services; however, the data available clearly indicate poor coverage.

According to McGuire (1993), most universal vitamin A supplementation programmes have failed to sustain high coverage over time. In Indonesia, where a vertical programme was introduced in 1980 over and above the existing primary health care programme to boost coverage rapidly, the coverage increased from 6 to 77 percent in 2 years. Subsequently it fell below 50 percent. In Bangladesh, the vitamin A programme using existing health care providers covered only 36 percent of the target population when surveyed.

The national evaluation of vitamin A programme in India revealed that the coverage varied from 20 to 87 percent in the 28 Subcentres studied. In only 9 Subcentres, the coverage was about

50 percent or more. The ineffectiveness of the programme in some areas was mainly due to poor coverage (Vijayaraghavan and Pralhad Rao 1978).

The report of a recent ACC/SCN Workshop (1991b) clearly indicates that the limited coverage of many national primary health care systems was a major limitation in iron supplementation coverage where it was most needed.

The iron supplementation programme evaluation in 11 States of India indicated that the coverage of beneficiaries was very poor : only 8.2 percent of the beneficiaries had been offered the supplement (ICMR 1989).

In a study carried out in 3 Primary Health Centres in Gujarat over 3 years, it was found that the unmet' need for most maternal and child health interventions was due to inadequate supply of services to the village and the households (Mavlankar et al 1993).

10. Knowledge and Awareness of Beneficiaries

Community participation is a key element of primary health care. But in most of the Government primary health care programmes in India, it has not been actively incorporated (Mavlankar et al 1993).

One of the key reasons for integrating FP and MCH services in the Family Welfare Programme is ensuring better community participation and better acceptance of FP by the people. However, in a study of 1200 women in rural and urban Tamil Nadu who had accepted some method of family planning, it was found that more than 50 percent of the respondents were not aware of any advantage of maternal and child health (MCH) care. Among the remaining there was a lack of perception of the important benefits of MCH. Regarding utilisation of MCH services, immunisation was availed of by 87 to 92 percent of the subjects for their children or themselves. Nutritional care (iron supplements) was negligible with 0.7 percent of the mothers reporting use of nutritional services during the antenatal period. On the other hand 72 percent had utilised nutritional services (vitamin A and iron supplements) for children. Thus, poor knowledge of MCH services and the inability to perceive the health worker as the provider of integrated FP and MCH services could account for underutilisation of most MCH services (Ramachandran 1987).

Similarly, Khan et al (1986) evaluated the access to health and family planning services in rural Uttar Pradesh and found that majority of the female informants were not aware of prenatal care in pregnancy such as taking iron and folic acid tablets.

It was found in an USAID assisted ICDS Impact Evaluation Project in Panchmahals (Gujarat) and Chandrapur (Maharashtra) that although the AWWs had adequate nutrition health knowledge, it was not being transferred to mothers. Thus, efforts are needed to improve counselling skills of AWWs and to motivate mothers to receive the counselling (Gujral and Gopaldas 1992).

An evaluation of vitamin A programme in 9 States of India revealed that less than 10 percent of the parents were actually aware of the distribution of vitamin A to their children and in their areas. Only in the State of Karnataka, 40 to 50 percent of the community members were aware that their children had received vitamin A (Vijayaraghavan and Pralhad Rao 1982).

It has been found that the efforts to assure participation in iron supplementation programmes in various countries have hitherto been minimal and that clinic based health workers often lack time and/or motivation to foster involvement through improved patient-provider communication at health centres. There is a need to give priority to educate the beneficiaries in countries including Thailand, India, Indonesia, Burma and in the Caribbean because there is a general lack of awareness regarding the iron supplementation programmes (ACC/SCN 1991b).

Nearly 60 percent of the women included in an evaluation of iron programme in 11 States in India had no knowledge of any symptoms of anemia indicating a very high rate of lack of awareness (ICMR 1989). A study of community participation in ICDS has revealed that this programme is still very much the concern of the provider with the recipient' displaying only a marginal and guarded interest (Gopalan 1988).

VI. USE OF QUALITATIVE AND QUANTITATIVE METHODOLOGIES IN EVALUATION OF NUTRITION PROGRAMMES

In this section the objectives and uses of some qualitative and quantitative methods and their integration are reviewed. These are Rapid Assessment Procedures, Observations, Interviews, Ranking, Narratives and Scenarios, Secondary Data Review and finally Triangulation of methods.

Rapid Assessment Procedures

Rapid Assessment Procedures (RAP) is a simple methodology for rapid assessment of nutrition and primary health care programmes (Hurtado 1987). It is named diversely : Rapid Rural Appraisals, Participatory Rural Appraisals, Rapid Ethnographic Procedures. The major importance of RAP methodology lies in its ability to generate relevant problem oriented information for the improvement of programme activities in a short period of time and at a small cost. RAP can be utilized by social scientists or by health personnel themselves (Ndolamb 1991).

RAP was developed for the United Nations University (UNU) research program in order to improve understanding of the successes and problems related to the implementation of the recommendations of the Alma Ata conference. The procedures are concerned specifically with beliefs and perceptions regarding health, the prevention and treatment of illness, and the utilization of traditional and biomedical health resources (Scrimshaw and Hurtado 1987). The studies in the Central American Region (Guatemala, Nicaragua and Costa Rica) under the UNU program on health seeking behaviour highlighted the role of the household & specifically of the mother in nutrition & health care

The Institute of Nutrition of Central America and Panama (INCAP) conducted a project using RAP to improve child survival through the reduction of diarrhoeal disease, the implementation of growth monitoring and health education. The findings of the study have pointed out the need to consider cultural factors while implementing child survival technologies (Hurtado 1987).

According to Chambers (1990), the Rapid Assessments or Appraisals approaches are based on certain common principles. Some of these are: learning rapidly, iteratively and progressively with flexible use of methods; triangulating, optimal ignorance (not trying to find out more than is needed) appropriate imprecision (not measuring more accurately than is necessary for practical purposes); and, critical self awareness and doubt, reflecting on what is being seen and not seen.

Anthropological research attempts to understand social phenomena from an insider perspective rather than by imposing an investigator's framework from the outside. It deals with cultural nuances such as the discrepancy between ideal and real behaviour by understanding the underlying mores of the community and by relying heavily on observation as well as other multiple sources of information (Scrimshaw 1992).

Pearson and Kessler (1992) view RAP as an approach which utilizes many methodologies, many tools - both qualitative and quantitative. It allows the inclusion of viewpoints and opinions of beneficiaries as well as policy makers and service providers. They have described the hallmarks of the RAP process:

1) RAP is investigative : It attempts to discover not only what is happening but why is it happening, or in some instances, not happening.
2) RAP is process oriented : It analyzes not only the end results but the process of getting there. It attempts to discern the facilitating factors and the constraints.
3) RAP attempts to assess situations holistically : The process looks at many angles of a situation from many perspectives. It places problems in context and seeks to look at interactions, patterns and evolution over time.
4) RAP places great importance on informed judgement : It attempts to ensure that judgements will be informed by putting emphasis on observing, describing, listening and getting different view points.
5) RAP is efficient : It emphasizes optimum use of existing data. It may include multiple techniques - qualitative and quantitative.

2. Observations and Time Allocation Studies

According to Bernard et al (1986), the ideal instrument for social science is an unobtrusive omniscient observer who describes without omission or distortion all the environmental conditions of a particular field site, all the behaviour of the people there and all their utterances.

According to Kachondham (1992), direct observations are important to understand the complex relationship between cognition and behaviour. Behaviours are not always consonant with cognition. On the contrary, people often act in a manner not consistent with their knowledge and beliefs (Cognitive dissonance).

In time frame studies (Bernard et al 1986), direct observations focus on a specific individual for a specific period of time. The unit of time may be bounded by any time frame from 5 minutes to a week. The main value of focussed observations is that they allow description of behaviour in context. Furthermore, making many such time-motion descriptions allows for quantitative descriptions of patterns of behaviour.

The continuous monitoring technique (Bernard 1991) was developed in the field of management and is widely used today in all the behavioural sciences. A subject or a group of subjects are watched for a specific period of time and their behaviour is recorded as faithfully as possible. For example, observing workers making pins in a factory and brick layers plying their trade can lead to effective recommendations for improving work performance.

According to Srinivas (1974), macro studies data give one perspective and micro studies give insights; that is why there must be continuous creative dialogue between the two. He spent 10 months in a village called Rampura in Karnataka State and got valuable insights into interrelationships and processes in rural life through the participant observer approach.

Bentley (1988) used the method of participant observations to study the household management of childhood diarrhoea in rural North India. The child, the mother and other child care providers were observed during the actual diarrhoeal episodes through daily or alternate day household visits. Post recovery visits were also done to compare feeding practices during and after diarrhoea.

Hubeis (1990) conducted participant observations in a village in Java (Indonesia) to increase the reliability of data collected on household budget and food purchasing, preparation and distribution activities. It was found that greatest insights could be gained by taking a holistic approach, relying not only on quantitative research methods but also exploring the available range of qualitative methods.

In a study carried out in Parbhani district of Maharashtra to assess the nutrition problems, observations were recorded regarding household and environmental sanitation, source of drinking water, personal hygiene and access to mass media especially the radio and television (Kashyap 1990).

Direct observations of patient-provider interactions and of women's behaviour in relation to their reproductive health have been conducted in India (Bentley et al 1992). The data are in the process of being analyzed and written up.

According to Annett and Rifkin (1990), observations are important as they verify or nullify information given verbally, and point to areas which may have been overlooked, either intentionally or unintentionally. A type of observation is to look at the kinds of services provided and to see how well these services are managed. For example: Are the records well kept? Is the staff readily available and enthusiastic? Is good supervision being undertaken? Are the health services available? Are they used?

LaFond (1992) made observations in MCH Clinics and immunization sites and found that the lack of trust by mothers in health services resulted from the poor quality of health care available. Further, the lack of perceived benefit from attending the MCH Centre coupled with constraints on mothers' time hindered immunization completion.

Observations were used in Brazil to study the primary health care systems, their rationale and functioning, and client-providers relations (Mota 1992). Waiting room situations and medical consultations were observed in two health posts serving lower to middle income families. Observations were also carried out in households with children under five years old. The inefficiency of basic urban services such as transportation to reach health clinics and the need for educational services was highlighted.

Johns Hopkins University (1976) carried out a functional analysis of health needs and services in two countries - India and Turkey. They carried out studies at community as well as health centre level. They used work sampling observations to obtain representative, minimally biased information for the analysis of health centre activities. Analysis of work sampling data in India revealed that in Punjab, the greatest time investment in the health centres occurred in administrative support and personal activities while in Mysore, the largest block of time went into travel. Only about one-sixth of the total health centre effort went into direct service (such as patient consultation, dispensing, injection and laboratory) compared to one-fourth in Mysore. Moreover, in Punjab, suppporting activities consumed more than twice as much time as service efforts. These findings have been reported to be disappointing when compared with the ideal picture, which is that a very substantial direct service component should be supported by the components of administrative and other support activities such as record maintenance and supervision, and not vice versa.

Time-activity data have become increasingly important for nutritional studies as functional measures are being increasingly emphasized in nutrition, and nutrition is being looked at in its entire social context to understand the important linkages between social and household variables and nutritional wellbeing. Time-activity data can be obtained through observation, interview and diary recording. The results of activity analysis can be used to supply information on the daily schedules of individuals and households, productive work inside and outside the household and how time is allocated to different work and leisure activities (Messer 1986).

Khan et al (1986) used participant observation method to study the time-activity pattern of pregnant women in Uttar Pradesh. Data indicated discrimination against women at all stages of the life cycle in terms of nutrition and health aspects. Observations helped in capturing the phenomenon of dual activities which were often performed but neglected by the respondents during interviews (Khan and Ghosh Dastidar 1984).

3. Interviews

Interviews are classified into the following categories depending on their structure and degree of control:

Unstructured interviewing: Highly open-ended questions in terms of space, time, events, people, activities or objects are asked and have been described as Grand Tour' questions by Spradley (1979). A general outline is followed but the researcher may incorporate additional items as appropriate (Scrimshaw and Hurtado 1987).

Semistructured interviews: An outline or guideline indicating the major issues to be covered is developed. The interviewee is allowed to put forward his views on a particular issue and the role of the interviewer is to listen and prevent the conversation

from going off on a tangent (Kashyap 1992). A semi-structured interview is conducted in such a manner that the informant can introduce subjects or aspects of subjects, not anticipated by the interviewer (Annett and Rifkin 1990).

Structured interviewing: Interview schedules and questionnaires with close-ended questions, are the most common form of structured interviewing. Structured domain interviewing is an important type of structured interviewing which may be considered a bridge between unstructured and structured interviews. The questions are generally open-ended but the range of topics covered is preset so that variations as well as agreements about a cultural domain are brought out (Bernard et al 1986).

Key informant interviews: Key informants are people who, because of their official position or informal leadership, have access to information about the community rather than about individual problems, such as Government officials and social and health service personnel (Annett and Rifkin 1990).

In India, open-ended questions with minimal probing helped elicit detailed information about women's health seeking behaviour in the slums (Kanani 1990). In the same study, key informant interviews with traditional birth attendants and indigenous medical practitioners were used to generate information about women's morbidity and health seeking behaviour from these health providers.

A detailed structured interview schedule containing both open-ended and closed-ended questions to allow for maximum spontaneity of responses was used by Bentley (1988) to gain insight into the beliefs and knowledge of mothers regarding the cause and prevention of diarrhoea, perceived appropriate treatment during diarrhoea and the knowledge and use of Oral Rehydration Therapy.

A relatively unstructured ethnomedical approach was used by Blaxter (1983) to understand the concept of disease' and its causes, as held by 46 middle aged women brought up in poor social circumstances in an Scottish city. During 1-2 hour conversations, in the general context of health and illness, the women were encouraged to talk about whatever was most salient to them. The health histories of their families and their attitudes and beliefs about health and sickness were thus elicited. In a community nutrition study in West Java, in-depth interviews were conducted not only to gain insight into complex socioeconomic and cultural phenomena but also to pursue specific subjects in greater detail, for example, the intra-household food distribution and dietary patterns (Hubeis 1990).

4. Ranking

Ranking can be obtained by presenting the informants with a written form or with a stack of cards with pictures or names of items written on the cards. The informants are then asked to arrange the cards in a certain order (from most' to least' or from best' to worst' and so on). The method is especially

useful for semi-literates or non-literates. The items are ranked in terms of a specific characteristic, such as occupations in terms of prestige (Weller and Romney 1990).

Ranking has been used to rank order disease terms on different concepts such as on contagion or severity. Women were asked in this study to rank approximately 30 diseases from most contagious to least contagious (Weller 1980). Ranking was used by Rifkin et al (1992) to rank the problems in low income urban areas in Tanzania in order of priority. Key informants (Government officials, social and health service personnel, teachers, community leaders and members of non-governmental organizations) were given cards with identified problems and asked to put them in order of importance.

5. Narratives and Scenarios

Narratives have been used by a voluntary organization in India to obtain the emic (insider) view regarding women's health and morbidity from slum dwelling women in India (Kanani 1990). Narratives in this study provided a step-by-step folk description of a recent illness episode and the range of health seeking behaviours pertaining to specific, commonly encountered women's illnesses such as malaria, anemia and menstrual disorders.

Kanani et al (1991) have described the use of scenarios. They presented hypothetical illness scenarios to eight health practitioners and obtained their views regarding the desired treatment seeking behaviour and actual treatment seeking behaviour of women in slums of India.

6. Secondary data

Archival/Documentary data include all material collected or written up by persons other than the investigator. These may be ethnographic materials or documentary sources such as census records, household registers and diaries (Bernard et al 1986).

Written records are an important source of information but in reviewing written records it is necessary to be highly selective about the information abstracted (Annett and Rifkin 1990). The sources of written records include census statistics, hospital and clinic records, Ministry records and studies undertaken by various agencies.

7. Triangulation

Triangulation is the use of multiple research methods to study the same problem. An integration of quantitative data with qualitative data can provide insight into the values and subjective perceptions of the subjects studied, particularly the socio-cultural, economic and political contexts in which those perceptions and values are generated, thus aiding in the interpretation of survey data (Glik et al 1987).

Triangulation was first used in social sciences by Campbell and Fiske (1959). They argued that more than one method should be

used in the validation process to ensure that the variance reflected is that of the trait and not of the method. The effectiveness of triangulation rests on the premise that the weaknesses in each single method will be compensated by the strengths of another. Triangulation allows researchers to be more confident of their results. It serves as the critical test, by virtue of its comprehensiveness, for competing theories. Further, the researcher is likely to sustain a profitable closeness to the situation which allows greater sensitivity to the multiple sources of data (Jick 1979).

Glik et al (1987) used both quantitative and qualitative data collection methods for educational diagnosis of the health behaviours of mothers with regard to malaria and diarrhoea in their young children in Rwanda, East Africa. The findings of a large quantitative survey (n=67) were validated by conducting in-depth interviews with a subsample of five to eight women and gave additional insight into more extensive attitudinal, knowledge and practice indicators.

The sample survey and case study approaches were integrated to generate complementary information on family decision-making processes in a study undertaken by Operations Research Group in Uttar Pradesh as part of a International Labour Organization's global project (Khan and Ghosh Dastidar 1984). The experience showed that such integration is extremely rewarding and provides much more information particularly on the dynamics of decision making processes at the family level than could otherwise be obtained through surveys. For example while the survey helped in identifying the characteristics and proportion of couples who are not practising family planning in the general population, case studies helped in answering the question "why do they not accept family planning"?

Summing up, the above review has indicated that research is lacking on nutrition programme management which

- looks closely at the service providers and their management of the nutrition programmes from several perspectives like supervision, logistics, time management and MIS;
- compares urban and rural nutrition programmes within the overall primary health care infrastructure;
- integrates both qualitative and quantitative methods (especially observations and interviews).

Such research on two important national programmes in India to control the micronutrient deficiencies of iron (National Nutritional Anemia Prophylaxis Programme and National Programme for the Prevention of Blindness due to Vitamin A Deficiency) has not been reported, especially in Madhya Pradesh. Therefore, the present research was taken up in Indore district in Madhya Pradesh, India.