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The Effect of Incongruity on Quality of Health Information Systems: Bama, Nigeria PHC Case Study

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A great philosopher once said,

" Life is indeed darkness save where there is urge; all urge is blind save where there is knowledge; all knowledge is vain save where there is work; and all work is empty save where there is love; when you work with love, you bind yourself to yourself and to one another and to God " (Gibran)

This has been a very fulfilling learning experience.

ABSTRACT

Generally, organisations mobilise information from varying sources on which policies, plans, objectives and organisational management are predicated. Indeed, everyone within organisation needs information to perform tasks, it is thus indispensable and its use so pervasive that a methodical approach for collection and processing is imperative. In health care organisations, involved with people and life, this is even of greater significance, in many instances allowable margin of error is narrow and can be devastating. Accurate and reliable information in clinical care for example cannot be compromised.

On the other hand, adequate assessment of health services quality, effectiveness and efficiency depends on quality of information generated by the system, that is, accurate, relevant, timely, understandable and complete information. To achieve this, appropriate system design and operation is essential.

Adoption of primary health care (PHC), in many developing countries in response to the Global 2000, necessitated establishment of mechanisms for monitoring and evaluating effectiveness of services and programmes. Accordingly, in 1986 PHC was adopted in Nigeria, concomitantly, system monitoring and evaluation or the PHC Management Information System was effected.

The information system was envisaged to ameliorate the lack of reliable health information that has persisted since inception of modern health services in Nigeria. Findings in this and other studies indicate that existing health information systems have failed to provide accurate and reliable information, systems of data generation and processing are ineffective.

The aim of this was to identify and understand factors that have contributed to the seemingly intractable and insalubrious information problem within the

Nigerian health care system. It would be a herculean task for a lone researcher to undertake study of the entire health system, within resource and time limitations, data collection was therefore narrowed to the PHC level. Quality of the PHC management information system was assessed, with Bama Local Government as a case study. Focus was on understanding the information system's structure from a broad perspective to include, policies, objectives, established procedures; physical, material and human resources, in terms of their quality and quantity.

Data collection was carried out using both qualitative and quantitative techniques. The structure, process and outcome models provided a framework for in-depth data collection, through observation, interview, review of records and administration of questionnaire, as well as for organisation and analysis of research data. The PHC MIS was followed through, from the village, health facility, local government, state and national levels.

Study results suggest general ineffectiveness due to pervasive incongruity in the information system. In the first instance design of the MIS did not reflect information needs of community health workers and the community in general, who to the most part limited appreciation of the MIS structure, objectives to be achieved. Local and regional information need was not delineated, data collected had little relevance to local information needs, resource for systems operation was abysmal, skilled personnel and training provided severely inadequate.

Consequently, data collection and processing was hampered, information produced often inaccurate, untimely, immense, irrelevant and unreliable. Data collected were neither analysed nor utilised. The information system was short of being integrated since 60% of functional units within the PHC department as well as related health organisations in the community ran parallel information systems.

Research data point to serious incongruity in the organisation and management of the information system. Incongruity that resulted from factors within the organisation as well derived from events within the wider social environment, which however culminated in an effective and dysfunctional information system.

Chapters one to three of the thesis deal with conceptual issues related to management information systems, organisational design and quality respectively. In chapter four methodological issues surrounding data collection were discussed. Empirical data and analysis are presented are presented in chapters five to seven. In chapter eight, an attempt was made to develop a model of organisational incongruity, applied to explicate research findings. Chapter nine focuses on measures toward establishment of an effective PHC information system in Nigeria, contributions of this study and suggestions for future research.

This work is dedicated to the memory of my Father
and to my children
Olivia, Robert, Arthur and Jacqueline,
with all my love.

TABLE OF CONTENTS

LIST of TABLES

Table **Pages**

LIST OF FIGURES

ABBREVIATIONS

BCG	Bacillus Camette Guerin
C.H.O.	Community Health Officer
C.S.M	Cerebro Spinal Meningitis
CBIS	Computer Based Information System
CHC	Comprehensive Health Centre
D.R.F	Drug Revolving Fund
D.S.N	Disease Notification
DPT	Diphtheria, Polio, Tetanus
DSS	Decision Support System
E.P.I	Expanded Programme on Immunisation
EDP	Electronic Data Processing
ESS	Executive Support System
F.M.H.S.S	Federal Ministry of Health and Social Services
F.M.O.H.	Federal Ministry of Health
F.P.	Family Planning
H.F.	Health Facility
HSR	Health Systems Research
I.F.R.	individual Functional Responsibility
I.S.R.	Individual Social Responsibility
IQAMSS	International Quality Assurance Management System's Standards
ISO	International Standards Organisation
L.G.A.	Local Government Area
M & E	Monitoring and Evaluation
M.C.H	Maternal / Child Health
M.I.S.	Management Information System

N.P.H.C.D.A	National Primary Health Care Development Agency
O.F.R.	Organisational Functional Responsibility
O.R.T.	Oral Rehydration Therapy
O.S.R.	Organisational Social Responsibility
OPV	Oral Polio Vaccine
P.H.C	Primary Health Care
S.M.O.H	State Ministry of Health
SSS	Sugar, Salt Solution
T.B.A.	Traditional Birth Attendant
UMTH	University of Maiduguri Teaching Hospital
UNICEF	United Nations Children's Fund
V.H.W.	Village Voluntary Health Worker
WHO	World Health Organisation

INTRODUCTION

Recently, health systems have experienced great changes in response to the 1978 global adoption of primary health care (PHC), as means of ensuring access to affordable, acceptable and effective basic health services to people of the world no matter where they lived. A strategy geared toward good health and social life, equity and justice for all people. In view of this, careful attention in policies, planning and management of health services was advocated, underpinned by adequate mechanisms for monitoring and evaluating effectiveness and efficiency of programmes. An objective that requires the right quality and quantity of information.

Assessing effectiveness of primary health care programmes and planning appropriate interventions, depend on the information system's capacity to generate simple, reliable, relevant, accurate, timely and understandable information that are usable where needed. By implication, assessing any element of primary health care cannot be adequately effected without the right quantity and quality of information. Therefore, regardless of context, quality primary health information is a desideratum.

In Nigeria, notable achievements are recorded since inception of PHC in 1986, particularly in terms of increased access to basic health services, claims in the reduction of morbidity and mortality rates are however, yet to be demonstrated with reliable statistical evidence, which has thus far proofed difficult to accomplish due to ineffective information systems.

However, a disheartening reality is the persistent high incidence of various infectious diseases, for example in 1985, 727 cases of cholera were reported, 838 in 1988, 1,057 in 1989 and 4,101 in 1991. Similarly, between 1986 and 1989, cerebrospinal meningitis ravaged many states, that by December of 1990 there were 78,904 reported cases (Williams, 1991). Between 1986 and 1990, major Yellow Fever epidemic occurred which affected about 21 states, with an

estimated 16,126 reported cases and 3,633 deaths and a case fatality rate of 22.5%. It is suggested that these are conservative numbers which are possibly 4 to 10 times higher.

An epidemic that was thought to have started in June 1986 but only recognised in March 1987. There had been ten such epidemics since 1913, the most recent being the 1986 to 1990 occurrence. Yet, it was difficult to provide details of the epidemiology and control of a five year long problem. Ministry of health officials suggest epidemic was poorly controlled due to poor disease surveillance and notification, poor diagnosis and response time, insufficient vaccine, and poor logistic support for vaccination campaigns. A situation attributed to poor management, decision making process and ineffective information system.(Tomori,.et al, 1991).

But this is not new, within the framework of the National Health Policy and Development, defects in existing health information system were unambiguously expressed. It is documented that planning, monitoring and evaluation of health services were severely hampered by dearth of reliable data. Basic demographic data about size, structure and distribution of the population were unreliable; systems for registration of births and deaths defective. It has therefore been impossible to calculate with confidence simple demographic and health indicators; and health services cannot be managed efficiently based on available data. This culminated in establishment of a national health information system.(FMOH,1988).

Similar problems were expressed in early days of modern health services in Nigeria. For example Brown, (1955), wrote, "it is less surprising that statistics as to health are neither abundant nor for the most part detailed, than there are any statistics at all." Schram (1971), opined that by middle of the twentieth century, there had been successes in elimination of certain epidemics, yet advances in registration of accurate statistics had been slow.

There is no denying tremendous efforts made by the Federal Ministry of Health (FMOH), measures directed toward improvement include commencement in 1991 of national training courses in health planning and management; health research, health information systems and health economics. Initially, target group was health officials in state and federal ministries of health, but was later extended to training of LGA managers. The disease surveillance and reporting systems are continually modified in response to needed changes for improvement. In addition, the PHC monitoring and evaluation (M&E) or the management information system (MIS).was established.

While the PHC MIS is truly a positive development, there are still problems impinging on effectiveness of the system. For example the M&E Division of the National Primary Care Development Agency (NPHCDA), produces periodic reports based on analysis of data submitted by the model LGAs. However, caution has continually been proffered in the use of analysis produced, since data reliability is dubious and derived from only few of model LGAs that submitted reports regularly.(FMOH, 1992).

Similarly, based on problems identified during implementation of the M&E system in the model LGAs, which included partial submission; incomplete reporting; and late submission. The FMOH, indicated main causes as inadequate supervision and the lack of emphasis on local use of data. Presumably, lessons learnt, led to changes, from which the current system emanated.

Results of this study show these and many other fundamental problems have continued to hamper effectiveness of the PHC management information system. The question therefore is why has seemed impossible to operate an health information system capable of providing accurate and reliable information and why has such gross ineffectiveness persisted ?

In order to adequately understand operations of the information system and to identify inherent causes of systems ineffectiveness, an in depth study was necessary. However, studies thus far have tended to be limited in scope and depth and internally generated. Most studies are carried out by the ministry of health, in form of routine supervision or survey, by the use of questionnaire or simply holding discussions with respective PHC health managers.

An example is the August to September 1993, general supervisory visits to few selected LGAs on which reports would be predicated. A one day supervisory visit to an LGA, in which discussions are held with responsible officers is clearly not sufficient in addressing a long standing problem of this magnitude. Other studies have tended to address MIS tangentially in general evaluative reports on activities of the PHC system. Example is the evaluation of primary health care implementation 1986 to 1990, of the 52 model LGAs, by the NPHCDA.

Certain indicators were examined which fall short of addressing major problems in the PHC information system. A survey that was based on administration of structured questionnaire, result of which suggest most LGAs had performed impressively well in setting up the information system for monitoring and evaluation; 90% had sufficient M&E forms; and over 77% were receiving reports from districts and sending to the states.(FMOH, 1992). It is obviously difficult to understand the nature of structure of the system, data collection, processing and the utilisation of information if any at this level. Explicitly, findings tell us absolutely nothing about actual operations of the MIS.

Also, a WHO Team reviewed the LGA focused primary health care in Nigeria in 1991. The team examined the MIS which was reported in a page and half. Findings include: information generated was limited to service activities and not those who used services; data from private and voluntary agencies not integrated; data on cost, quality and effectiveness of services not generated;

there were parallel information systems operating simultaneously; data was mainly used at central level.

Similarly, the team reported staff had been adequately trained in the use of various data collection instruments; information was flowing based on established channels from community, health facilities, LGA, state to federal level. Final conclusion of the team was a suitable MIS framework was established and operational (WHO, 1992). How was information that led to these conclusions derived ?

Interestingly, the team visited two states Ogun and Oyo, two neighbouring states in the same geographical area, from 6 to 13 July 1991. Apart form the two states being among those with the best qualified PHC health workers in the country and have been the focus of many research studies by national and international organisations. Extensive discussions were held with health officials according to the Review Team.(WHO, 1992). This study was very limited in scope and depth, and yet formed the basis for generalisations on the MIS.

There is still the problem of lack of understanding of factors that persistently render systems incapable of generating accurate and reliable information on which national and local health policies, planning, decisions and management could be predicated.

This study is perhaps the first in-depth study using diverse data collection techniques, that examines quality of the structure and processes of the PHC management information system, independent of the health ministry. Research findings suggest serious structural incongruity within the system that contribute to the persistent ineffectiveness, which past studies have failed to address. These problems can only be appreciated through detailed data collection and analysis. Data collection for this study focused on the design of the PHC information system, its relevance and applicability to the LGA PHC system; MIS objectives delineated at all levels of the health system, from community, LGA,

state and federal levels; policies that guide objectives and operation of the MIS and their practicalistion; available resource in a broad sense, provided for implementation of the information system; skills, training and knowledge of workers responsible for effecting the information system; and procedures, operational guidelines for processual activities.

The study's main objective was to assess quality of the PHC management information system in Nigeria, through a detailed and in depth examination of operations of Bama PHC MIS. The use of varying data collection techniques was imperative, observation, interview, review of document and questionnaire administration.

Study Environment

The Federal Republic of Nigeria is in the tropics within the Gulf of Guinea, 13 degrees north of the equator. It covers approximately 923, 768 square kilometres. There are 30 semi autonomous states and a Federal Capital Territory, 589 Local Governments, with an estimated population of 85 million based on 1991 census.

Borno state lies in extreme Northeast of Nigeria, with 24 LGAS. Bama LGA. is located 75 kilometres Southeast of Borno, with a population of approximately 196,285 based on 1991 census. Population is predominantly, rural farmers, traders and cattle rearers. There are four administrative districts: Bama, Gulumba, Wuloji, and Dara el jamal. Bama is a district, the LGA Headquarters as well as the name of the LGA. The LGA Council consisting of a chairman and other administrative officers is responsible for managing affairs of the local government. At the same time Bama is under the rulership of Shehu of Dikwa, traditional ruler of Dikwa Emirate. Islam is the main religion, and the dominant ethnic group is Kanuri.

Its selection was predicated on numerous factors, one of which is the characteristic semi urban/rural nature of the area, representing an average local government, with attributes common to other parts of the country. Many health facilities are far from the PHC Headquarters which is in Bama, roads are bad and unmotorable for most of the year, while some communities are completely shut out during the rainy season, from July to October. For this, data collection in the remote areas had to be completed before the end of July. In addition, telephone and electricity are limited to Bama, with services inconsistent.

In 1988-1989 after the implementation of PHC, a baseline study was carried out, leading to prioritization of activities, which include: advocacy for PHC; zoning of Bama LGA into district for mapping; reorientation of health staff to PHC; formation of village and district health committees; household health registration; restructuring existing health system; training of volunteer health workers; upgrading of health facilities; strengthening of PHC services; monitoring and evaluation; and establishment of an essential drug system.

An appropriate PHC infrastructure was thus expected to be in place as was expected in other LGAs in the country. Equally, Bama has a long standing relationship with the University of Maiduguri College of Medicine and the Teaching Hospital, these institutions provide training and technical support for PHC programmes while the community provides field experience for medical students and suitable research environment for scientists. A privilege not shared by other LGA in the Borno and only a few in the country. An added advantage that presumably would place Bama LGA more equipped. The notion was to avoid the best or worse off LGA, which would result in distorted view of the MIS.

Also its proximity to Maiduguri was expedient in the face of economic and political constraints. This study was conducted when the country was going through unstable and unpredictable political period, with grave uncertainty.

Bama was the only LGA in Borno State with input from secondary and tertiary levels of health care, at the same time shared provision of primary care services with other organisations.

It was therefore ideal in providing a broad picture of activities within the PHC as well as how the PHC department interacted with other external units and their contribution to the management information system. There are only few LGAs in the country with this capability, the point was to capture an LGA in the context of prevailing circumstances that had all the necessary elements stipulated by the ministry of health for effective PHC and MIS, without sacrificing characteristic socio, environmental and economic factors that impinge on an average LGA in the country.

Organisation of the Research

The research is divided into three main parts, including the introduction and conclusion. As an academic work it was imperative from the outset to appreciate theoretical concepts on information system, organisational design and operations, as well as theoretical models on quality. This paved the way for a better understanding of the Nigerian MIS. Chapter one examines concepts on management information system; criteria for quality determination; and information needs for decision making and management. The chapter ended with a review of the health information systems. The management information system does not exist in a vacuum but within an existing organisational structure, that affects its design and operations. Theories on organisational design and their implications for the information systems are reviewed in chapter two.

This research assessed quality of the PHC information system. This task could not be possible without an understanding of prescribed and accepted approaches to quality assessment, which formed the focus of chapter three.

Since quality assessment in health care is a recent development and derived from tested approaches in business and industry, examination of quality measures in industry paved the way for better appreciation of quality developments and approaches in health care.

To carry out the nature of analysis required for this study, in-depth data collection was imperative. Decision on the most appropriate data collection technique was a bit problematic, divided between application of questionnaire, commonly used for its convenience and qualitative approach. However, questionnaire administration alone for data gathering on complex and intricate social systems, may not be sufficient for the depth and scope of understanding required in this study. Naturally, the proclivity for Nigerian scientists due to limited resource is often application of less expensive and more expedient data collection technique.

In this case application of qualitative approach was imperative, observation, interview, examination of existing records, and questionnaire administration were deployed for data collection. Discussions in chapter four focus on methodological issues, rationale for application of each data collection technique and significance of context in researching in developing countries.

Part two comprises three chapters. Chapter five, focuses on the Nigeria health care system, health policies; the health situation in Nigeria and resources for the attainment of national health objectives. The development and implementation of primary health care in Nigeria and place of the management Information system within this framework and structure of the MIS are discussed. In chapter six, applying the structure, process and outcome models, research data on Bama PHC management Information System are presented. Analysis of data in chapter seven brought to focus major sources of structural incongruity in the MIS and how these affect process and outcome of the information system.

Difficulty in explicating research findings on the basis of traditional theoretical perspectives, suggested the need for a relevant model. A situation that therefore led to the development of an organisational incongruity model, presented in chapter eight. The final part is chapter nine which is divided into summary of the present study; the effect of societal/organisational incongruity on the information system; measures toward restructuring for effective community information system; contributions of the study; and areas for further research.

CHAPTER 1

MANAGEMENT INFORMATION SYSTEMS CONCEPTS

1.1: Introduction

Health management information systems is an emerging field, review of MIS literature suggest that while studies toward development of MIS as a field of scientific research has reached an advanced stage, no MIS theory has yet emerged. Cushing (1990), argues that most MIS literature tend to explicate ways for design of MIS, its implementation and management, often such prescriptions are based on experience and wisdom rather than a body of empirically tested theory. Examples are literature by Bocchino, 1972; Bentley, 1982; Thierauf, 1984; Davis and Olson, 1985; Hicks,1987; Long, 1989; Lucey, 1993).

Several MIS theories proposed are still under empirical testing. Some examples include the relational data base theory by Codd, (1970) which predicts that relational data base structures will be superior to alternative data base structures, in terms of minimisation of data redundancy and ease of user understanding. On the other hand literature on structured programming theory (Dijkstra, 1976; Boehm, 1983), posits that certain desirable programme features such as correctness, understandability, testability, ease of development and survivability are related to the use of certain programme conventions. However, studies to test various aspects of this theory by Gibson et.al. (1989); Vessey, et, al. (1983); Lientz, et.al. (1981), have been inconclusive.

Similarly, in a series of publication Nolan (1973; 1975; 1979), argues that the computer budget of companies would assume an S- shaped curve when plotted over time from initial investment to mature operation. He also suggests that certain patterns of management behaviour tend to occur at certain stages. However, studies by Lucas, et.al. (1977); King et. al (1984); Benbasat et. al.

(1984), yielded results that do not support the concept of an S-shaped budget curve or the MIS management patterns. Nevertheless, an understanding of Bama PHC Management information system can only be achieved in view of existing concepts and models. This chapter examines relevant concepts, desirable programme features essential for an effective MIS.

1.2.: The Meaning of MIS

There is lack of conciseness and consensus regarding what constitutes MIS. Hicks,(1984), perceives MIS as a formalised, computer based system that has the capacity to integrate data from various sources, which provides information necessary for management decision making. An MIS thus has an integrative capability in the processing of data from various organisational units and the capacity to provide managers at various levels with relevant and timely information. But then he presupposes that all MIS are computer based, thus excluding manually operated information systems that perform similar functions.

On the other hand, Dixon, (1990), defines MIS as a system in which defined data are collected, processed and communicated to those responsible for the use of resource. This definition seem to limit management function only to the use of resource and the need for MIS as an aid to the distribution of resource. On the other hand, Sprague, (1980), sees MIS as the entire set of systems and activities required to manage, process and use information as a resource in the organisation. Information is thus a resource, rather than a means to resource utilisation, there seem to be recognition of, albeit not explicit of other elements involved in the MIS. However, Stoner et. al. (1992), from a broader perspective, defined MIS as a formal method of making available to management the accurate and timely information necessary to facilitate the decision making

process and enable the organisation's planning, control and operational functions to be carried out effectively. The system provides information on the past, present and projected future and on relevant events inside and outside the organisation. While this definition is broad, it however seem to restrict the source of information to the formal structure. The lifeblood of any organisation is the flow of intelligence, information, and data, this vital liquid moves along channels throughout the organisation.(Bocchino,W.A. 1972). Information is better understood in its relation to data.

Data according to etymology is derived from the Latin verb "do", "dare", meaning to give, while information is arrived at from the Latin verb "informo", "informare", to give form (Schoderbek, et.al.1990). Data (datum for singular), are the facts, figures collected from different internal or external sources. Data being the crude resource when transformed in a meaningful way become information. Organisation, analysis and presentation of data in a comprehensive manner, provide usable knowledge and meaning, yield information.

Lucey, (1991), argues however, that collection, processing and analysis cannot transform data into information. Transformation is inherent in the understanding of the content of a report by the user. It is, the user who determines whether a report contains information or just processed data, thus narrowing information to processed data that is meaningful to a user. Explicitly, transformed data have some intrinsic value, meaning, knowledge which the user can interpret, understand and be able to use knowledge derived, which is information.

Information is thus defined by Davis,et.al, (1985), as data processed into a form that is meaningful to the recipient and is of real perceived value in current or prospective decisions. However, Tricker (1976), posits that Information is a deceptive and ambiguous concept. To explicate, Tricker outlined three levels of information. The inherent presence of information in an entity or event, in which

information lies in the content. Information in this context is the function of its source with no regard to the needs of the recipient or the meaning derived. Secondly, information is a mode of transmitting messages, therefore a source and a means of conveyance. At the third and higher level, the aforementioned functions are brought together, resulting in the recognition of information as a function of source, communication channel and the involvement of a recipient. Its relevance at this level is inherent in the meaning gained by the recipient and the extent to which uncertainty is reduced and knowledge increased.

However, usefulness of the information depends on interpretation given by the receiver, which Tricker argues differ from one individual to another. The same piece of data could be perceived, interpreted and information derived used differently by two individuals. Long, (1989); Stoner,et.al, (1992); Lucey, (1991), define information as what results from thoughtful analysis, manipulation and presentation of data in a meaningful way. Knowledge thus reduces uncertainty in a given situation, with more relevant information there is less ambiguity.

Information Systems

The system for transformation of data into information is the information system (IS). Acceptance therefore of the omnipresence of information implies that of the information system. Lucas, (1990) defines an information system as a set of organised procedures, when executed provides information to support the organisation. This definition is all encompassing with no attempt at distinguishing manual versus automated information systems.

However, Long, (1989), suggests that any mention of information system in today's world implies an automated system. Information system is thus a generic reference to a computer based system that provides data processing capabilities and information for the organisation, comprises hardware,

software, people, procedures and data. Similarly, Caputo, (1988), views an information system as comprising people, hardware, software and procedures required for data collection, processing, storage, retrieval and dissemination of information throughout the system. Along the same line Prince, (1975), defined an information system as a computer based network containing two or more operating systems, that provides relevant data to management for decision making purposes and contains necessary mechanism for implementing changes or responses made by management. Angell, et.al.(1991), in their definition separated computer systems and information systems. with this dichotomisation, computer systems are viewed as complex interconnection of numerous hardware and software components, that are formal, deterministic systems. In which an input yields some output, a sub-component of an organisational information system.

On the other hand, information systems are social systems whose behaviour is heavily determined by goals, values, and beliefs of individuals, groups and by the performance of technology. Information system is therefore non-deterministic and does not conform to algorithmic representation. Wolstenholme, et. al, (1993) view information system as a complex evolving entity bounded and nurtured by information use and deals with the use of information in managing resources to achieve organisational goals.

Certain common characteristics are discerned from the foregoing definitions. Primarily, an information system relates to data collection, processing and dissemination of information. While there is agreement that information system is made up of different elements, there is however no consensus on the components. There is obviously, no consensus in arriving at one all embracing and watertight definition.

In the context of this study an information system is a mechanism set up by the organisation to plan, collect data from varying sources, process data and disseminate information to managers and others who need it. An MIS is defined

as a formal integrated and co-ordinated system, manual or computer assisted method of planning for data collection and processing, which has the capacity to provide managers with accurate, timely relevant and understandable information necessary to facilitate decision making, planning and management processes in the organisation.

1.3: MIS Development

Information systems development and application is prominent in most modern organisational life and undergoing rapid changes at a pace difficult for most managers to keep up with. Long, (1989), points out that although computers and MIS have made management functions easier by easy accessibility of the right information, most executives are still pessimistic and view computers and MIS only as vehicles that erode their power. The current state of MIS could be better understood through its historical development.

At the beginning when organisations were small, less complex and generated minimal data, the Custodial Accounting System was used. Management and production were often carried out by few people, orientation was more on accounting reports rather than information for performing management functions. Managers were concerned more about obtaining facts instead of information, yesterday's information was used to solve today's problems.

This approach was relevant to that context, organisational changes were minimal and market economy was rather static. Data collection and processing involved manual methods, book keeping equipment, and punched card. The system was slow and lacked co-ordination and integration of information from varying sources.

As organisations grew, more employees were needed, more functions created, there were more customer accounts to be handled, increased

production records required and more problems to be solved. Resulted in greater division of responsibility and at the same time the need for integration and controlling of the various tasks performed by diverse employees. The growth of organisation led increased data generation and more information needed for management of a more complex organisation. New technology was developed to facilitate collection processing, storage of data. Typewriters, calculators, and eventually computer system were used. With the technological improvement more reports and accountability was expected from managers.

With the **Responsibility Reporting System**, reports preparation was based on responsibility assignments. Mangers were responsible and held accountable for financial commitment under their control. The introduction of a batch processing computer system to process and store data expedited the production of accounts reports. Systems designers later recognised, that organisational operations transcended accounting functions, which led to the development of a system that could integrate the various subsystems, people, machine, materials, money, and management toward attainment of organisation's objectives (Thierauf, R.J. 1984). Thus the birth of the Integrated Data Processing System.

The Integrated Data Processing System, was conceived in response to increased complexity of organisational operations, the need to integrate data from various operating functions of a large organisation, and still make information accessible to various managers involved. Integration could enable the processing of single data set for multiple purposes, thus eliminate data redundancies. The integrated system was however criticised for failing to provide timely reports. Improvement of this approach was deemed imperative and led to the development of a system capable of providing timely and relevant information for the various levels of management, thus the development of the management information system.

Management Information System (MIS), is conceived as a network or an amalgam of information from the various subsystems that facilitates decision making and management of the organisation. Systems designers argue that MIS has the capacity to support data processing functions of transactions in the organisation; uses an integrated data base to support various functional areas; provides managers at all levels (operational, tactical and strategic), with structured information at the right time; a flexible system that is adaptable to changing needs of the organisation; and has the capacity for effective security of information.

Although MIS are rapidly becoming part of organisational structure, they are not devoid of deficiencies. Some have argued that while MIS has the capacity to facilitate structured decision making, it does not have the capacity to assist managers in unstructured decisions. Thus the development of Decision Support Systems in the mid 1970s. Systems designers argue that the Decision Support System (DSS), was developed to support human decision making in semi-structured and unstructured situations which MIS could not provide. It was considered a healthy reaction against earlier centralised, monolithic information system (Angell, et. al.,1991). Others have however, questioned the validity of DSS, since MIS was designed to facilitate management decision making.

Proponents on the other hand view DSS as transcending the mere provision of information from highly automated, structured, deterministic algorithms for transaction processing to a more interactive system(Angell, et. al,1991). In support Thierauf, (1984), argues that the relationship between manager and computer advocated in DSS results in a greater accomplishment, more than each working independently, thus providing synergistic decision making. An argument further supported by Stoner, et.al.(1992), definition of DSS as an interactive computer system made easy for non computer specialists that facilitates planning and decision making and complements the functions of MIS.

However, systems designers seem to suggest that since decisions at the strategic level are characteristically highly unstructured a different type of information system is required. The **Executive Support System (ESS)**, or **Executive Information Systems**, is advocated, a system not yet fully conceptualised or defined, but is a method by which executives access, on demand the information stored in management information systems. Its essence is to provide quick, user friendly access to information by non technical high level executives. While some MIS experts tend to view ESS as sub component of DSS, sceptics on the other hand see it as a marketing ploy by soft ware vendors (Long, L.1989).

However, despite advances in the development of information systems, organisations have continued to encounter problems. As new systems are developed to tackle old problems, other problems seem to develop., obviously, no system yet developed is foolproof. Nevertheless, it is argued that the essence of any information system manual, computerised, cheap or sophisticated is its capacity to provide relevant, accurate, timely information to managers at all levels of the organisation for effective decision making, planning and controlling organisational activities, facilitate attainment of objectives and respond readily to internal and external changes.

Its forte lies in the ability to capture data as close to the point of origin as possible, channel it to the information processing stations where it is organised, processed, summarised and then forwarded to decision makers for use. Data capture, process, feedback, analysis, decision, and control are the major structural elements of any management information system (Bocchino, W.A.,1972). How is the MIS efficacy determined? Most literature on MIS tend to reiterate a number of suggestive rather than prescriptive attributes regarded as essential for an effective MIS of optimum quality.

1.4: Concept of Quality in the MIS

Horton, (1989), suggests despite advances in information technology, decision makers are still not getting the information they need at the right time, in the right place and in the right form. The most frequently occurring desirable attributes are relevance, accuracy, timeliness, completeness and verifiability. **Relevance** quality of information relates to appropriateness of the MIS design in the context of organisational information needs (Hicks,1984; Martin,et. al.1992; Lucey,1993; Long, 1989).

Relevance is concerned with the ability of the MIS to provide required information rather than, massive volume of information that are irrelevant to the organisation or decision to be made. With increasing information technology and the ease at which reports can be put together, it is easy to produce reports, tabulations that contain irrelevant information which masks important messages being conveyed. Lucas,(1990), suggests that easy production of inappropriate information is one common failing of computer based systems.

Similarly, Ackoff, (1967), asserts managers suffer more from an over abundance of irrelevant information than the lack of information. The preoccupation with supply of relevant information he says, leads to emphasis on constructing data banks, coding, indexing, updating files access languages, creating an infinite pool of data in which a manager can reach and pull any information required. Information relevance could also be viewed relative to the needs of a particular manager, as well as the organisation. Relevant information to one decision maker may be irrelevant to another. The dynamic nature of organisations, problems to be tackled, implies dynamism in decision making and information needs. Relevance therefore relates to the availability of appropriate information for immediate, short and long term needs of decision makers and the organisation.

Accuracy in the production of data and information is the ratio of correct information to the total amount of information over time (Dixon, 1990).The accuracy quality refers to the degree information is free from error(Hicks,1984; Long, 1992). Furthermore, Stoner, et.al.(1992), suggest that the more accurate the information the higher its quality and the more secure managers can rely on it when making decisions. However, there is no agreed level of accuracy necessary, since presumably quality increases cost and if higher quality does not contribute materially to a manager's ability to make sound decision then the value of the added cost is questionable. Furthermore, level of accuracy could be subject to a managers interpretative ability of the information provided. Martin, et.al (1992), argue that information should be accurate for the purpose in mind, wrong and misleading information have adverse implications and worse than no information.

It is advocated that the level of accuracy ought to reflect the context and the management level where information is needed. The three distinct levels of decision making strategic, tactical and operational require varying degrees of information support and accuracy (Sollenberger, 1968; Kast.et.al.1985; Caputo, 1988; Martin, et.al. 1992; Lucey, 1993.) For example, operational level mangers that make decisions about day to day running of the organisation require detailed, comprehensive information with high degree of accuracy. At the strategic level, a great deal of insight, creativity and judgement are essential in decision making, information requirement is mostly qualitative in nature, incomplete with less emphasis on precision. This has great relevance to the data collection process and tools utilised in data collection.

However, whatever the level of information accuracy, it is essential for data collectors and managers to have the capacity to understand and give proper interpretation of information provided. Effective systems of data collection and processing as well as interpretative skills are essential in ensuring accuracy of information. Accuracy of information could be confirmed through verification, by

tracing information to its original source. Audit trail is one approach used, which traces summarised information to its original source or detailed input data followed to summarised information. **Timely** information is vital in decision making, information is time sensitive and must be available to the right person and at the right time, when needed. This is underpinned by Horton (1989), concept of information life cycle, which conceives information like living things pass through a predictable and definable stages, they are produced, refined, communicated, stored, organised, used, reused and eventually start to decline in utility and eventually purged.

Information therefore looses its utility value if it arrived after decision had been made. Similarly, what is considered highly valuable information by a manager today will sharply reduce in value in a month and even more in a year. Prompt production of information needed by managers is considered one of the fortes of computerisation. Again timeliness is relative to the level of organisation and the decision to be made. Operational managers require timely information on day to day activities of the organisation. Today's decisions cannot be made with tomorrow's information. On the other hand strategic decisions are of long term, requiring information over along period of time, in this context time period within which a piece of information is required could extend to six months and a year.

However, information could be timely and accurate but not complete. **Completeness** refers to the lack of omission in a piece of information, needed for a particular decision. A manager needs all the information relevant to a problem, task or issue in order to make appropriate decision, if some parts are missing, value of information is reduced. Understandability, asserts Lucey, (1991), is what actually makes the difference between data and information, until recipient is able to understand and use information, it is yet to be regarded as information. Understanding, is what transforms processed data into information, reports that are too complex are often incomprehensible and mask

rather than reveal important information. Usefulness of information to a manger depends on the managers ability to understand the information.

It seems however, that these quality attributes are attainable only in ideal situations, where organisational objectives and those for the information system are clearly defined and understood; information design fits organisational structure and objectives; resources made available for attainment of objectives; information personnel and managers are trained and have the capacity to mobilise data, process and use information; accomplishment of organisational objectives is pursued rather than individual objectives. (Martin,et.al.1992), suggest that practically, it is appropriate to select desirable characteristics most relevant to each situation.

There is however, no ideal situations and the failure to appreciate this fact, perhaps explains the continued failure of MIS to meet expectations. As Agyris (1980), points out valid maps for understanding reality may have different properties than the maps people utilise to take action. Furthermore since people rarely have complete pictures of what goes on in their heads, there is difficulty in knowing what goes in other peoples, thus there will always be incomplete information to any complex episode.

Similarly, Earl, et.al.(1980), questions the unproved existence of any priori relationship between formal MIS as formally conceived and effective organisational performance. In similar vein, Grinyer, et .al, (1975) found no significant relationship between formal information systems and financial performance but rather found both informal channels of communication and informal decision making processes to be associated with success.

Literature seem to indicate that information used by many managers in critical decisions do not emanate from the formal MIS but more from informal sources such as the grapevine. For example, Mintzberg, (1972), discovered ,that top managers select and prefer informal information processing in most of their

work. These and other factors could lead to ineffective use of the MIS. Ineffectiveness lead to contradictions and further attempt for a tamper proof MIS by systems designers which again results in further contradiction and ineffectiveness.

1.5: Computer and MIS

The need for information and its pervasive use by managers and others in organisations means the existence of some form of management information system at the outset of organisations. The organisation and utilisation of earlier systems were highly informal but emergence of computers, their capacity to process large amounts of data led to changes in the design of MIS (Stoner,et.al.1992). Similarly, Bocchino, (1972), asserts that albeit MIS is as old as organisation, early function focused on the after the fact reporting, were unhelpful to managers and resulted in continual crisis pursuit. The development of electronic computers and other quantitative decision tools brought about changes in the MIS.

Similarly, Dixon, (1990), acceding most management information systems are computer based, however MIS predates computers, when viewed historically as extension of management accounting with application of tools and techniques from the field of management service, decision theory and behavioural theories of management. In essence computer broadened the scope of MIS by facilitating collection, and processing of data, coupled with its capacity to merge data from different sources.

These arguments seem to draw a dividing line between computers and MIS. In essence computers and accompanying attributes are data processing systems, yet subcomponent of MIS with the capacity to bring and store data from different sources, as well as facilitate analysis. MIS on the other is an integration of all the elements involved in data collection processing and the

provision of useful information to managers. However, in the early days of computerisation, application was limited to the processing of data in few organisational functions, was too complex and limited to the department of electronic data processing (EDP), with limited use by managers.

As computers evolved more people in organisations were trained, its uses were extended to other data processing functions and information management tasks. The development of EDP led to increased standardisation, resulted in better planning of organisations' information systems. This enhanced mangers' ability to use the technology with minimum input from EDP professional, culminating in the era of MIS (Schoderbek, .et. al.1990). This resulted in the concept- computer based information system (CBIS), sometimes called computer based MIS or simply known as MIS.

However, Radley, (1973), admonishes the dangerous misconception that an expensive microcomputer was a prerequisite to an effective management information system. In his view, a computer based system cannot on it's own volition result in an effective MIS and must therefore be regarded as an electronic equipment which when properly utilised can be a valuable management aid.

On the same note (Ackoff, R. 1967; Roszak,T. 1986; Weizenbaum, J. 1976), expressed misgivings on the self proclaimed benefits of computerisation. Writings on MIS seem to support this argument. For example (Angell,et.al.1991), argues that advances in computer and communication technologies are rapidly outstripping the ability to use and manage the resulting products, which has the potential of being counter productive.

Furthermore, recent studies by Lakhanpal, (1994); Mason,et.al. (1991); Lee, (1986), have shown that proliferation of microcomputers in organisations does not always lead to utilisation. Managers are still weary of information technology and show considerable variation in computer utilisation. However,

Forster, et.al. (1992), in their study concluded that the use of microcomputer in decentralised manner closer to the point of data collection in a developing country proved to reduce error rate and enhanced prompt data production. The notion that all information systems are automated is equally disputed by Cashmore, et.al. (1991), who argue that an information system transcends hardware and formal predetermined channels of information to include informal, transient and invisible channels.

Increasingly studies have shown that while successes are realised by some organisations, others have lost huge sums of money to information technology. As Harrington, (1991), points out merely increasing the ability to process more information rapidly does not guarantee success. The organisational system through which increased information passes must be able to accommodate such changes.

1.6: Information Needs for Decision and Management

1.6.1: MIS in Decision Making

Decision making is regarded as the essence of management and information is indispensable in the process. Anthony, (1965), delineated three types of decisions as a framework for information system, these are strategic planning decisions, managerial control decisions and operational control decisions. This conceptualisation was then broadened by Gory et al (1971), to represent types of decisions made at the three levels of management, upper, middle and lower levels. The clerical level is a fourth dimension advocated by (Long, 1989). Most MIS literature seem to have adopted this categorisation (Bentley, 1982; 1984; Thierauf, .1984; Davis, et al. 1985; Caputo, 1988; Long, 1989; Dixon, 1990; Cashmore, et.al.,1991; Lucas, 1990; Hicks, Martin, et al.

1992; Stoner,.et.al.,1992; Lucey, 1993; Keen, 1994). As discussed earlier certain desirable attributes are essential for an effective MIS. A system will be able to produce relevant, accurate, timely and understandable information for the three levels of management delineated. Expert suggestion is that the three levels, by virtue of differences in nature of decisions made and responsibilities, each has different information needs.

At the Operational Level, supervisory managers are involved in operational decisions related to day to day activities of the organisation. Regular detailed, comprehensive and accurate information are required from the system on a daily or weekly basis. Experts believe that, to a greater extent, programmed decision making characterises decisions at this level. These are routine decisions with established policies and procedures. Information requirement centres on assessment of performance and attainment of short term objectives and improving operational systems.

Middle Level Management are involved in tactical decisions. Mangers focus on implementation of decisions taken at the strategic level, ensure attainment of medium term objectives; involved in monitoring and control of outcomes; and concerned with efficient and effective resource use.

Top Level Managers involved in strategic decisions are concerned with establishment of policies, setting long term strategies and acquisition of resources for attainment of organisational broad and long term objectives. These decisions are futuristic, full of uncertainty with far reaching implications for the organisation. More information are required from external sources. Due to the wide range of source, information is therefore mostly qualitative and allowable margin of accuracy required is wider.

These categorisations are not entirely mutually exclusive, managers at all levels are involved in any of the above decision making but to a greater extent top management focus more on strategic decisions and planning, middle

management with tactical decisions and lower management with operational decisions, each level requires certain types of information and therefore important factor for consideration in the selection and design of an MIS. Similarly, Simon, (1966), proposed two types of decisions, programmed and non programmed, from this perspective all decisions made by managers fall along a continuum from programmed(structured) to non programmed (unstructured). It has implications for decisions made at specific organisational levels and information requirements for the various decision.

Programmed decisions focus on well defined problems. These are usually routine, repetitive and based on established policies, procedures, rules and regulations. They tend to involve things rather than people and can easily be delegated to lower levels of the organisation. There are contrasting views to the application of computer in programmed decisions. Hicks, (1984) and others argue that programmed decisions do not necessarily require computer based system. On the other hand, Long, (1989), suggests that programmed decisions can be easily accomplished by the computer without human intervention.

Non programmed decisions on the other hand are often new, unstructured, non-routine, sometimes occur only once; they have no established procedures, with high degree of uncertainty with great reliance on judgement and creativity; and cannot be delegated to lower levels, may involve things but usually involve people, and sometimes with far reaching implications. These are however not absolute categorisation, many organisational decisions are a combination of elements from the two.

1.6.2: MIS in Management

Management is the process of planning, organising, leading and controlling the efforts of organisation members and of using all organisational resources including information to achieve organisational objectives (Mescon, et.al.1985).

However, there is no single commonly agreed definition (Stoner,et.al.1992). The single ubiquitous mind driven activity of mankind is management and cannot be accomplished without information (Hertz, 1965). Management is the catalytic process that converts input resources to attain output. others view management as the key subsystem in the organisational system, that affects the entire organisation and links all the other subsystems (Kast, F.,et.al 1985).

A management information system is therefore one which provides information for management at the various levels with timely and accurate information to facilitate efficient performance of management functions (Dixon, 1990). No management function can be carried out without information. However, studies have shown that the response of managers at varying levels of the organisation to information differs, thus affecting the way decisions are taken.

Managers have different cognitive styles. Some prefer structured information with methodical approach from the outset to the end, known as analytic or systematic style. The heuristic or intuitive approach is preferred by others, where the information as a whole is going, is of concern to the manger. Either approach could be effective relative to needs and circumstance and in the context of management functions to be performed.

Consequently not only the need for information but also, perception, behaviour and attitude of managers affect information use and thus management functions. The nature of the organisation and type of decision to be made influence the way information is interpreted and used. If a decision is related to a serious problem with far reaching consequences for the organisation, naturally greater scrutiny would be given to the information, its interpretation and use. Lucas, (1990), argues that people with different ideas interpret information differently and such ideas are often influenced by peers and socialisation process in a particular organisation. A results of a study by Dearborn et.al. (1958), show that personal and situational factors affected the

interpretation of information. Comparable information given to decision makers resulted in different interpretations.

The interpretation and use of information is influenced to a greater extent by the nature of the problem and decision to be made, organisational setting, personal and situational factors, and the cognitive style of the decision maker. If a piece of information is of little relevance to a managers objectives, it is more likely to receive little attention and would therefore receive different interpretation regardless of its importance to another manager. Information is therefore essential for all management functions, planning, decision making, organising, budgeting and controlling. These subsystems within an organisation are interrelated, affect each other and each cannot operate in exclusion of others.

The MIS as a subsystem of the organisation has the capacity to merge information from the various functional subsystem for effective management decision. The information system is therefore an inextricable part of the organisational structure. No information system can be better than the management it serves. If the organisation and management are haphazard and poorly co-ordinated, ineffective and inefficient, weakness in the management system are reflected in the information system. Perceptions, attitude, cognitive style, interpretation and understanding are factors that affect information use and outcome of decisions.

These factors are however related to appropriate systems design. The usefulness of the approach adopted to a greater extent depends on objectives, policies and procedures of the organisation. Unless these are clear, it is difficult to determine what information is required, how often and how it could be controlled. Information design must therefore reflect the structure and subsequently information needs of the organisation.

Organisational structure has far reaching implications on how functions are divided and integrated, relationships between units, patterns of authority and communication. It is concerned with rules, procedures, job descriptions, peoples position in the organisation, resource distribution, and determines management information need and its flow in the organisation. It is thus obvious that the there are numerous factors that affect the MIS, furthermore, the mere existence of information does not always lead to its utilisation, and can be subject to different interpretation by different managers. In addition all information provided to management are not always of the quality expected neither do they yield expected outcome when utilised. Some experts, argue that the failing of most MIS is due to failure of managers and organisations to understand the interrelated elements of the MIS and how they affect each other and MIS operation.

1.7: MIS and the Systems Concept

Throughout discussions in this work the use of the concept "system" is pervasive. The focus of the thesis is the management information system within a health care system. The management information system was defined as a set of elements, comprising machine, tools and people that collect and process data and provide the right quality and quantity of information to management when needed.

A system is thus an amalgam of various elements, that are related and depend on each others contribution for the attainment of some objective. Murdick et.al. (1971), argue that the systems approach embodies a philosophy of always viewing a situation and its components in its entirety rather than as separate pieces. The systems concept provides a framework for integrating all activities of the organisation as well as input from external environment.

The General Systems Theory (GST), developed over half a century ago was conceived by Von Bertalanffy, a German biologist, since then many derivatives applied to different disciplines humanistic and mechanistic systems have emerged. From this perspective the organisation and the information network are systems, hence the organisation is viewed as a unified purposeful system, composed of interrelated parts. These interrelated parts equally posses other interrelated parts, creating a hierarchy of parts or subcomponents.(Stoner, et.al.1992). The management information system for example has subsystem relevant to the operations of the MIS, but the MIS is a subsystem of the organisation system.

Howland, (1964), sees it as an organisation comprising man and machine components, involved in co-ordinated goal directed activity, connected by information channels and affected by an external environment. On the other hand Kast and Rosenzweig, (1985), defined systems as an organised unitary whole composed of two or more interdependent parts, components or subsystems and delineated by identifiable boundaries from its environmental supra system.

On the other hand applying this concept to the MIS, Thierauf, (1984), views it as a system that has interrelated subsystems that interface with each other. As data passes through the interfaces they are converted into information used for decision making. The output emanating provides further information with which management can make decisions regarding the input. The management information system subsequently interface with the transformation process, input resource is then converted into finished product needed by the customer. Common characteristics of open systems organisation, information, management or health systems can be delineated from the foregoing definitions. These systems are made up of interrelated and interactive parts (components or subsystems) and are ongoing processes, dynamic and always changing. They are open systems that interact with the environment, receive

input from and send output to the environment. Through this interaction equilibrium and homeostasis can be maintained. The various parts of the system are inextricably interrelated, if viewed separately cannot represent the whole, which in turn is greater than the sum of the parts.

In the health care system for example there many sub components, which includes the information system as a subsystem, its function is in synergy with other components of the health system, such as the management, planning, finance, personnel, research and operations subsystems. Consequently, changes in a part of the system affect other parts and the system in general. Sub-optimality arises when a subsystem aims at achieving its own objectives independent of higher organisational level objectives and in exclusion of other subsystems.

This concept allows for examination of systems input, process, output as basic elements of a system and their understanding is essential for proper systems design and operation. Input for the MIS includes raw data and all the materials necessary for gathering data. The process involves recording, classifying, sorting, calculation, storage and retrieval process. Output is the decision made on the basis of information derived and its effect on the various management functions, planning, organising operating. Feedback from both within and outside the system allows for regulating activities of the system.

1.8: Health Information Systems

Health systems are designed to provide health services for the maintenance of a healthy population. The attainment of this objective involves contribution of various sections of the health system which include activities carried out by health care professionals in the actual provision of health services; health policy development to ensure attainment of health objectives; development of strategies, planning and management of health services and programmes by

managers; determination of cost and resource needs and utilisation; and ensuring optimum quality health services. The WHO (1971), suggests that the basic component of the health information system include: indicators to measure the state of health of the population; measurement of the utilisation of health services; statistics of available resources; socio- demographic data; and data on the environment within which people live. For these activities, the appropriate quantity and quality information is a desideratum.

Although there has always been some sort of data collection in health care organisations, emphasis on effective health information management and management information systems gained prominence in recent times.(Knox, 1987, Fairey, 1986;) In the NHS for example Keen, (1994), suggests that important milestone in the formulation of an explicit information policy related to the 1979 Royal Commission on the NHS and the 1983 Grifith Report. The framework for a national data collection system emanated from the Korner Report of 1982, which identified inaccuracy, lack of timeliness, lack of analysis and use of information as problems in the NHS information system(Korner, 1982).

Establishment of standard information systems is recent in health care, which was made possible by the advent of computerisation(Gowing, 1994). This perhaps explains the dearth of literature on health information system or health management information systems. Health information implies, information on the health situation of individuals, groups and a population, health services and resources and other factors that affect health.

Health information system, includes people, procedures, equipment involved in data collection, processing, and provision of information to health workers and the population for informed decision. The successful and smooth running of health care systems, primary, secondary and tertiary depends on availability of a sound health information system (Osuga, 1994). Current emphasis on measurement of health services quality has contributed to the need for data

systems on which to base decisions and has led to innovation and change in the collection of health information, its integration, processing and use (Garnick, et al 1994).

Sources of Health Information

The various subsystems in the health sector generate and need varied types information for management decisions and planning in each context as well as contribute to national health information needs.

Hospitals management information are derived from data on services provided to patients, number of patients served, treatments provided, occupancy rate, resource utilisation, costs, human resources and their remuneration of workers, training and development of staff. Professional judgement, random information collection and the grapevine are other sources of management information within the hospital setting.

In a hospital, an integrated hospital information system could provide information for management as well as health professionals. The information system will have the capacity to provide information on individual patients or group of patients, medical practitioners, patients and speciality areas and results of services provided. At the same time data from various sources can then be combined and analysed to provide information for financial projections, resource need and utilisation, comparative analysis, quality assessment and audit review.

Hospital data can therefore be grouped into three broad categorisation: inpatient data; outpatient data; management and planning data. Hospital information systems form part of the national health information system, consequently relevant information from hospitals are merged at the central level with health data from other sources.

Population Census Reports provide data on the entire population, the age structure, geographic distribution, housing conditions, health status, economic and social status of the community. For specific needs of health ministries in a community rapid appraisal and sentinel reporting are useful sources of health information (Green, 1992).

Surveys, provide information on specific topics, by obtaining information from selected or representative subgroups, provide a means of assessing the wider health situation. Common areas of health surveys from health facilities or the community include; health needs, health services utilisation; health services accessibility, health manpower surveys; financial needs, distribution and expenditure surveys; surveys on knowledge, attitude and practice. While health survey form part of health information, its scope depends on issues being addressed, resources and level of accuracy required.

Registration of vital events such as births, deaths, marriages, migration are essential sources of demographic information. However, effectiveness and accuracy of information depend on how well this system is established in a country, a factor that determines its usefulness as a source of health information.

Routine Health Services Data and Notifiable Diseases

Routinely health facilities are required to collect data on existing primary care programmes and certain communicable diseases. While this system provides large amount of invaluable information, its efficacy depends on the skills of data collectors, level of accuracy and regularity in data collection and submission.

Health Facility Treatment Records

Records of health condition of health care consumers and services provided are kept in all health facilities and form a good source of health information. In some rural communities for example health facility register as it is called,

provide the only alternative source of information aside from routine data collection required by central level.

Operational Reports

Reports on cost and financing of services, drugs, health manpower, equipment are often compiled by health managers. However, the cost of health services and other resources are often excluded from information required for primary health care management. As pointed out by Waddington et.al.(1989), in their study of five financial information at district level of five developing countries, few management information systems in PHC included information on cost, yet resource allocation and budgeting are considered key functions of PHC managers. Similarly, information on human resource for health are often not given due attention, thus large amounts of data on health personnel are scattered in files, ledgers, registers and records but often not analysed or used to monitor staff employment, distribution, utilisation, costs neither is it related to the health needs and demands of the community (WHO, 1990).

Information from Related Ministries and Agencies

The PHC approach and the attainment of equity in health distribution requires the concerted contribution of various ministries, education, agriculture, water resource, information, housing. Services provided by other ministries contribute to health and data collected could enhance the quality of information derived from the health sector.

Health Systems Research (HSR)

HSR is an evolving discipline, its application in decision making and problem solving in the health sector has grown tremendously in the past decade. In 1976, the WHO Advisory Committee on Medical Research (ACMR), recognised the need for research in planning, organisation and management of health services. This resulted in establishment of the ACMR Subcommittee for HSR in 1978.

Health system research is a simple scientific approach for acquiring relevant and reliable information for effective management of the health system, with subsequent improvement in the health of the population and national development (Staugard, 1987). Characteristically, HSR allows for identification and solution of problems within their local contexts by using simple, feasible, affordable and practical approaches, which advocates participation of health workers, managers and researchers in the identification, research and solution of problems. It requires mobilisation of input from all ministries that impact on identified problem as well as using input from various academic disciplines. Findings and solutions are addressed within their cultural context.(WHO, 1983).

HSR, is generally viewed as an essential component of the Managerial Process for National Health Development and a tool for the collection of reliable and relevant information at all levels of the health care system (WHO, 1990). While the HSR approach is simple and relevant to the PHC context, its application requires training of health workers to identify health problems for research, simple data collection and data analysis techniques.

Many countries have recognised the positive contribution of HSR to health information and management. In Nigeria for example, a consultative meeting was held in July, 1992, from which a Working Group on National Health Systems Research was set up by the FMHSS, in September 1992. Since this initiative training of health workers and academics in the principles of HSR is ongoing. The framework for development of HSR was approved by the Federal Ministry and the WHO, political, legal and financial commitment for HSR are mandated by the Nigerian Government (FMH SS, 1992).

1.9: Current Studies on Health Information Systems

The establishment of structured information systems and the application of information for management are recent developments in the health systems.

Attention has been on developing a suitable system for the organisation. For example in a Study by Hoye et. al.(1984), the status of hospital management information systems in an urban area in Jefferson County, Kentucky was examined, to determine status of information systems operations and the level of usefulness of information system applications. Results showed that most hospitals had some sort of management information system but systems were more frequently used for record keeping and fiscal purposes, with a few management science and decision making capabilities.

Similarly, a study by Garnick,et.al. (1994), in view of proposed health reforms in the U.S.A , in which employers and purchasing co-operatives would have to measure quality of health care services, significance of information systems on which to base decision making triggered changes in the collection, processing, integration and use of health information from varying sources.

In Britain, the Nuffield Provincial Hospital Trust in its concern for information on all matters in health, established in Oxford and Glasgow the Bureaux of Health and Sickness Records in 1943. However it was in the last decade with reorganisation of the NHS and emphases on quality health care, effective management, efficient resource utilisation did the vital role of quality health information toward attainment NHS received due attention.

The Korner Steering Groups (1982-1985), and a series of report on health services information, set the pace for a structured health information system that would support management. Other works include the Knox (1987), review of the Korner Reports. NHS Review (1990), Working for Patients. Publication of the Framework for Information Systems, a consultative document comprising recommendations of the Department of Health Review project 34 on information. Later, in 1990 publication of agreed framework for information systems and actions to be taken from 1991-1993.(NHS,1990).

Again in 1992 the Information Management Group, published a document on information management and technology strategy, highlighting the need for co-ordinating information management and technology across the NHS, benefits to be derived by patients, practitioners and administrators and managers (DOH,1992). However, Keen (1994), suggests that while there are various individual health information policies, a coherent, integrated and consistent information policy is not yet discernible. There are variety of policies each with their own objectives contributing to the NHS information policy.

Developing Countries

In developing countries, literature seems to indicate emphases on improving information systems in primary health care. Husein, et.al.(1993), in their paper titled developing a primary health care management information system that supports the pursuit of equity, effectiveness and affordability, provided a detailed analysis of the development of the primary health care and management information system in Aga Khan, Pakistan. Suggestions for improvement include increasing community participation; minimising data collection and elimination of unnecessary monthly summaries; design of an information system to meet the needs of front-line workers, that focuses on the interface between front-line workers and the community; provision of adequate support for front-line workers; increasing consultation with the community; establishing measures to ensure data completeness and use of information.

Similarly, Kadt (1989), in his paper emphasised the need for an intersectoral approach to health care with implications for the information system. Information systems ought to be designed in order to enable managers monitor performance and provide feedback for policy decisions. Thus he argues that the function of information systems in developing countries should transcend the

mere collection of data with more attention given to the link between interventions and outcomes and cost implications.

Opit, (1987), in a paper on the generation and use of information in health care, argues that the main purpose of information systems in health care in developing countries was to enhance the well-being of the population it serves and not for maintenance of bureaucratic power. Consequently, a bottom-up approach is advocated for determining information needs, its generation and use.

However, Garner, et.al. (1992), implemented a health improvement project in slums of a developing country, with the objective of raising the level of health, education and community life. Due to problems encountered in the early periods of project implementation, an information system was introduced. Routine collection was on 74 indicators. Due to lack of personnel and technology information was filed away unanalysed.

Analysis showed that systems were overloaded due to collection of unnecessary demographic data; information was not related to impact measurement; unwieldy family files; undue centralisation of data collation; excessive numbers of health indicators, incompatibility with existing health information systems and computerisation viewed as a panacea to improvement. The system was rationalised, each proposed indicator was reviewed and unsuitable indicators eliminated.

On the other hand the use of computers was found to be useful in certain circumstances. For example, the use of microcomputers to manage data collection in the Gambia, during a continuos survey in malarial morbidity survey, the localised use of microcomputers resulted in real time data management, feedback was immediately available and immediate assessment possible; there were few errors and high coverage rate. Thus concluding that the system

reduced human efforts and increased efficiency(Rowan, et. al 1987; Stephens, et. al. 1989).

Similarly, Forster, et.al.(1992), reviewed studies that utilised computer based data management during the collection process in a study. Results seem to suggest reduction in error rate and the ability to produce data quickly. Also Newbrander, et.al. (1988), reported that computerisation of rural health information system in Papua New Guinea, facilitated data collection, processing; assisted managers in data analysis, planning and timely management decision making.

Waddington, et.al.(1989), on the other hand based on analysis of information from five countries, Ethiopia, Indonesia, Kenya, Sri Lanka and Tanzania, showed that a great deal of financial information was produced by health systems, which are only used by accountants or finance officers. Suggestion, was the inclusion of financial information in management information systems and the need for financial data collection to form part of data collected.

1.10: Summary

Discussions thus far seem to indicate that while MIS has become an essential component in organisations, its implementation and attainment of efficacy have not been easy. Other systems are continually developed in order to meet management information needs that have not been possible with MIS. Studies have also shown that, while improved information technology and advances in computerisation facilitated data processing, quality in the MIS and its usefulness are dependent on human idiosyncrasies. The contribution of the MIS in management and decision making is related to the managers' capacity

to determine information required, interpret and understand available information.

Furthermore, albeit, it is generally accepted that MIS facilitated management decision making, it is difficult however, to discern from literature exactly how this has occurred. Studies suggest enhanced data processing realised through computerisation does not necessarily tantamount improve quality, neither does correlate with increased information use. Similarly, quality of information is related to quality of data and the processing systems; availability of necessary inputs; skills, knowledge of data collectors; as well as quality and quantity of needed materials for data collection and processing.

On the other hand, determination and availability of inputs are inherent in the organisational structure of which the MIS is a part. It follows then that design and operations of the MIS should be addressed in the context of the organisation within which it exists. In view of this, theories on organisational structure and design are examined in the next chapter.

CHAPTER 2

STRUCTURE OF ORGANISATION: IMPLICATIONS FOR THE MIS

2.1: Introduction

Information systems, manual or automated are essential elements of contemporary organisation, designed to facilitate decision making and management at various levels. However, in chapter one numerous factors in the organisation, that impinge on the information system and thus quality of information produced, were discussed. From literature review, it is obvious that due to these factors, an MIS will not tantamount to availability of the right quantity and quality of information, neither does its availability result in effective managerial use of information.

The information system is an inextricable part of the organisational system in which it operates. Davis, et al (1985), suggest, the influence of information system and organisation structure is reciprocal, thus affect each other. The way an organisation is designed and operated has implications for the MIS. This chapter examines various theories on organisational structure and their implications for design and operations of the MIS.

2.2: Conception of Structure

Although sociologists have long recognised the significance of social structure in society, it is after the Second World War that organisation structure gained prominence in discussions on organisation and the theory of organisations. With this development varying conceptualisation and application of the metaphor

emerged. Mintzberg (1979), views structure of an organisation as simply the sum total of the ways in which it divides its labour into distinct tasks and achieves co-ordination among them.

This rather narrow definition seem compatible with the notion that organisation structure is represented by organisational charts, depicting hierarchy in the organisation, the division of labour and the control system within the organisation. Similarly, definitions are proffered by other traditional organisation theorist. However, Selznick (1949) from a naturalist perspective, views organisation structure as an adaptive organism shaped in reaction to the characteristics and commitments of participants as well as the influences of external environment. On the other hand Watson, (1986), perceives structure as fluid, an abstraction which is the outcome of ever changing employee interaction, open and subject to varied influences. Morgan (1986), from similar point of view, sees structure as an abstract phenomena, which exist only in our minds, is difficult to control and change as actions and perceptions change.

Structure/Technology Relationship

Adopting the above definitions implies the integration of technology and structure. However, some experts seem to have a contrasting view. For example, Woodard (1958; 1965), as a result of studies in industrial organisations brought to focus the importance of technology as determinant of organisational structure. This was broadened and applied to other organisations by Thompson, (1967); Litwak, (1961); Perrow, (1967, 1970). The natural system theorists posit that technology does not shape social structure but rather, social structure at both organisational as well as wider societal levels shape technology.

For example Noble (1984), argues that the process of technological development is basically social with a large degree of indeterminacy, freedom in which beyond

the constraints of energy and matter, human thoughts and action remain decisive. Similarly, Davis et.al. (1976), argue that social choices are inherent in technological design, the various technological alternatives often considered by technical system planners, the presentation of one solution involves social action. Natural system theorist thus argue that while technology may constrain structural design, structure is not determined by technology as proposed by the contingency theorists. Child (1972) asserts that technology and other environmental conditions pose only broad and general constraint on structural design.

Woodward (1965), argued that structure was dependent on production technology, that it was possible to trace a cause and effect relationship between a system of production and organisational pattern, thus possible given an organisation's production system to predict its requirements. This was derived from a comparative study of eighty firms on a unit and small batch, large batch and mass and flow process classification.

However, Mohr (1971), found little support for Woodward's structure /technology relationship. Hickson, et.al.(1969), not able to replicate Woodward's findings on the significance of technology, concluded that technology affected structure only in smaller organisations and in those parts of the organisation directly related to the technology and the work flow.

Thompson (1967), accepted the notion proposed by Simon (1957), that structure was a vehicle for attainment of bounded rationality within organisations, with such proposition assumed organisation structure to facilitate co-ordination of actions of interdependent elements. Three levels of interdependence are proposed as basis for predicting structural features of the organisation. Pooled interdependence in which interrelationship elements or process of work performed contributes to the overall objective. Sequential interdependence exists when some activities must be

performed before others. Reciprocal interdependent exists when elements or activities relate to each other both as inputs and outputs.

Thomspson further argues that pooled interdependence can be managed by the development of rules and routines, by standardisation. While sequential interdependence requires plans or schedules and reciprocal interdependence requires mutual adjustment or co-ordination by feedback, by each interrelated party communicating their requirements and respond to the needs of others. To demonstrate such propositions, a complex organisation relatively free of what Thompson termed "contaminating contingencies" from the environment was needed. The medium bomb wing of the Strategic Air Command of the United States Air Force provided the archetype required.

Hulin et.al.(1985), perceive technology as the physical and the intellectual processes by which materials are transformed into output. With this conceptualisation of technology as the catalyst for transformation of input into output, a linkage is thus established between the environment, since organisational inputs are derived from and outputs exported to the environment. Furthermore manpower and other resources used by the organisation are obtained from the environment in the form of technology.

Structure, within the limits of this study comprises both abstract as well as the tangible elements utilised in the transformation process, the relationships among people performing various tasks, formal and informal, and the technologies applied. A broad definition of structure adopted as the organisation of work, resources, including skills and knowledge of workers and the tools employed in execution of tasks.

Organisation Defined

The meaning of the concept "organisation" is perhaps inherent in its source, derived from the Greek word "organon" meaning an instrument. A derivative that could explicate the utilitarian nature of organisation as tool for attaining goals and objectives. Numerous definitions of organisation have been presented by theorist from varying perspectives. Organisations are regarded as social units or human groupings, deliberately constructed and reconstructed to seek specific goals (Etzioni,1964). On the other hand, Scott (1992), views organisations as collectivities oriented to the pursuit of relatively specific goals and exhibiting relatively highly formalised social structures. Barnard (1938), much earlier asserts that formal organisation is that kind of co-operation among men that is conscious, deliberate and purposeful. These theorist view organisation from a highly formalised point of view, as composite of formalised structures, with defined set of common objectives by its members, co-operation and co-ordination.

Organisation theory is concerned with the study of the structure, functioning and performance of organisations and the behaviour of groups and individuals within them (Pugh,1990). Major elements of organisation are structure, individuals within organisation and activities carried out by them.

2.3: Mechanistic View of Organisation

The perception of organisation as machine is perhaps related to the notion that organisations are instruments derived from its origin, used for the attainment of some goals and objectives. This instrumentalist view, could be traced back to the industrial revolution, as the use of machines increased, organisations were adapted to suit them. During this period for example early economists like Smith (1776),

advocated division of labour and work specialisation in order to reduce discretion of workers, increase machine control, as a means of increasing efficiency.

New procedures and techniques were instituted to discipline workers and to facilitate adherence to rigorous factory production processes (Morgan, 1993). Similarly, Fredrick the Great of Prussia who ruled from (1740 to 1786), constructed an archetype mechanistic organisation. Reformation of an army consisting of criminals, paupers and unwilling conscripts was accomplished by standardisation of rules and regulations, increased job specialisation, use of standard equipment, creation of command language and systematic training. People and organisations gradually began functioning like machines. Similarly, Barbbage (1832), after invention of the mathematical computer, published a treatise emphasising the scientific approach to organisation and management, underpinning the need for planning and division of labour.

These attempts, gained theoretical foundation in the nineteenth century with the work of Taylor, (1911), who initiated the scientific management approach that is widely recognised as bases for work designs. Taylor and his followers such as Gilbreth, (1917), were concerned with analysis of functions performed by workers in order to identify those procedures that would produce maximum output with minimum input of energy and resource.

Tasks to be performed and individuals were paired, the best person for a specific task was selected, through time and motion studies. Workers were monitored to ensure appropriate implementation of procedures and attainment of expected results. The main objective was replacement of arbitrary work habits with analytical and scientific procedures (Taylor, 1947). Close examination of manufacturing firms, institutions, department stores for example operate within these principles. Despite it lack of consideration for the human work force, it is credited for increases in

productivity and the growth of skilled labour. An approach to organisation design and management, perhaps relevant to the time and prevailing circumstances.

In the meantime Fayol, (1949), was developing his work with emphasis on management functions and establishment of broad administrative principles that would guide and rationalise organisation functions. Thus, focus was more on practical management problems and the establishment of standards of management that could be used by others. Fayol's concern was effecting the right management structure that would lead to better use of the work force and accomplishment of organisational objectives.

These ideas did not gain attention until they were translated into English and expanded by exponents like Mooney et. al. (1939), and Gulick et.al. (1937), and volume of papers on the Science of Administration which was published in French in 1916, the English version published first published in 1919. Fayol asserts that principles of management are limitless, every rule or managerial procedure that enhances the functioning of the organisation or strengthens what is termed the "body corporate" is worthy of consideration as a principle of management.

However fourteen principles of management which he had applied were identified: division of work was vital to effectiveness of the organisation; work specialisation; established principles of authority and responsibility; adherence to rules and regulations; unity of command; the scalar chain, which represents the chain of command and communication; subordination of individual interest to general interests; adequate remuneration of workers and fairness.

There must be order in the organisation; equity, is predicated on the issue of kindness and justice in order to encourage personnel in their work, which is somewhat related to the principle of stability of tenure of personnel, the need for employees to acquire requisite skills for task accomplishment, thus the time within

which skills are developed is vital. The power to think out a plan and carry it out is considered an important attribute, regarded as the ability to take initiative, which must be encouraged in the organisation. Unity and harmony among workers, "esprit de corps" give strength to the organisation as much as possible workers should be encouraged to bind together rather than being split.

However, what seems more obvious is that implementation of Fayol,s principles would produce a highly regimented and machine like organisation with no consideration of implicit and explicit differences between man and machine. One that advocates rational efficient and effective management of organisation through the design of the organisation based on the application of the aforementioned principles. Critiques such as Simon (1976), condemned many of the principles, as deceptively simple concealing inherent fundamental ambiguity.

Max Weber a German Sociologist working independent of Fayol and Taylor, focused on analysis of administrative structures, from which the concept of bureaucracy was developed. In his book the Theory of Social and Economic Organisation first published in 1924, later translated into English in 1947. Weber identified three forms of authority: legitimate authority, traditional rational and charismatic. Traditional authority rested on the sanctity of immemorial traditions and the legitimacy of the status of those exercising authority under them. Explicitly, this type of authority is derived from the respect people give to those who occupy position of authority within this realm, symbolise custom, practices and traditional values of the past.

Charismatic authority is based on devotion to the specific and exceptional sanctity, heroism and exemplary character of an individual person, and of the normative patterns or order revealed or ordained by him. This type of authority

develops when special qualities of people are respected, thus allowing the individual to act on their behalf due to those qualities.

Rational/legal authority on the other hand rests on the legality of patterns of normative rules and rights of those elevated to authority under such rules to issue commands. The exercise of power is thus predicated on the appropriate application of formal rules and procedures. Each type of authority is related to a distinct administrative structure. For example traditional authority gives rise to a rather diffuse structure, while the charismatic type leads to strictly personal relations between the leader and his believers. On the other hand rational/legal provides specific and universalistic structure of which the most highly developed form is bureaucracy.

Weber's analysis of bureaucracy is derived purely from the principle of legal rational authority, organisation is thus characterised by particular structures and legitimation of control and rationality presented in its purest form. The ideal form of organisation, in which formal structural arrangements are expected to serve the most effective administrative processes and ensure attainment of organisational objectives. Weber's model is depicted by a number of administrative characteristics: division of labour among participants; offices arranged in hierarchy; performance governed by set rules and regulations; separation of personal and official property; selection of personnel based on technical competence; and employment regarded as a career by employee.

However, Blau, et. al. (1962) view the bureaucratic structure as an admixture of a conceptual scheme and a set of hypotheses, that lacked distinction between definitions and propositions. In contrast, Udy (1959), argues that Weber's model represented a set of structural variables whose interrelations should not be taken as a matter of definition but subject for empirical exploration. Furthermore, recent

writers such as Mcneil (1978); Thompson(1980); Kalberg(1980); Meyer(1990) argue that early organisational analysts misconstrued the underlying principles of bureaucracy. The bureaucratic structure has however continued to shape organisations and their relationship with wider social structure.

By implication the information system is designed along formal structure of rationality, hierarchy of command, specialisation, centralisation. Information systems are thus designed and application with rationally determined objectives, attainable through application of rational rules, procedures. Design of the information system fits specialisation within the organisation. Leavitt et al (1958), argued that a relationship between increased centralisation and information system within organisation. Greater access to information increases management control over important organisational decisions. However, recent studies by Delehanty, (1971); Robey, (1981); have shown no change in structure due to increase in information technology.

Problems with the Mechanistic Perspective

Mechanistic theories of organisation suggest that effective organisations have formal, rational organised structures, objectives clearly delineated, job defined and explicitly distributed, with clear mechanisms of control. These attributes result in efficiency, effectiveness and attainment of predetermined organisational goals and objectives.

This point of view presupposes all circumstances and all human behaviour are equal and static, thus the notion of a one best approach to organising the organisation. Resulting in no consideration of the other multiple factors that impinge on organisation and on the humans that operate in organisations, with individual expectations and objectives, capacity for individual thinking, thus can never be completely transformed to operate mechanistically. Consequently,

mechanistically structured organisations are less adaptive to changing circumstances since they are only designed to attain predetermined goals and not innovation.

Some theorists view the machine approach as dehumanising, culminating in emergence of interest in organisations with more consideration for human participants. Satisfaction of the needs of workers as living organisms was recognised as vital to the attainment of organisational goals. An effective organisation was thus conceived as one capable of meeting workers' and organisational needs.

2.4: Concept of Organisation as Organism

The natural system or organismic perspective, views organisations as complex living entities which do not have machine like qualities. Blau (1956), argues that to administer a social organisation according to purely technical criteria of rationality is irrational, since it disregards the irrational aspects of social conduct. The integration of organisational and individual needs was recognised as paramount to organisational growth and development, thus the continued attempt to redesign formal organisational structures to satisfy both needs.

Elton Mayor (1949) with the number of studies at Hawthorne Western electric Company, gave this perspective its initial foundation. Through a series of studies Mayo and his colleagues demonstrated the simultaneous existence of informal and formal structures in organisations. The significance of social needs in the work place and methods deployed individuals and groups to satisfy these needs, were

highlighted. These studies gave impetus to others. For example, Maslow (1943), posits that human beings are psychological organism with needs, that are aimed at being satisfied. The satisfaction of these needs allows for growth and development. Needs are organised in a hierarchy, from the most basic such as air and food in the physiological domain, through social and psychological needs at higher levels, which transcend the mere acquisition of job and money.

Similarly, McGregor(1960), to this effect proposed a theory X and Y. Theory X represents machine approach, while theory Y advocates the establishment of conditions which would allow members of the organisation to achieve individual goals while contributing to the attainment organisational goals. Other contributors to the organismic perspective include Hertzberg, (1966); Barnard, (1938); Katz, et.al., (1978); Parsons (1960); Blake,et.al., (1964); Selznick(1949) and many others. The organismic approach advocates the design of tasks in organisation to meet the needs of workers in order to increase job satisfaction which would then perhaps lead to increases in productivity.

In summary, the organismic perspectives clearly offer numerous ways of perceiving the organisation and designing an effective organisation, which advocate management that focus on people, motivation and relationships, individual satisfaction and participatory decision making. Generally, the interrelationship between organisational needs and those of workers are emphasised, the success of the organisation depends on a design that provides opportunity for the satisfaction of both sets of needs. Similarly, the interrelationship and interaction between the various elements of the organisation and with the external environment, led to an acceptance that the environment impact on the shaping of the organisation.

Problems with Natural systems Perspective

The primary weakness in the organismic perspectives is difficulty in understanding reasoning behind the analogy between a living organism and an organisation. The two are not comparable, a particular living organism is created as a package with parts that cannot function independent of one another. On the other hand different parts of the organisation and actors within the organisations can and often operate independently, in pursuit of individual goals.

The environment is treated as an abstract entity and the nature of its interaction with the organisation rather ambiguous. It is not clear which and how the organisation interacts with the various elements in the environment, which includes social, political, economic, and cultural phenomena.

There is for example a school of thought which argues that political activities are part of organisational life rather than an external phenomenon that ought to be kept distance from the organisation. It is believed that tasks, distribution of resources in organisation to some extent are based on power struggle and thus politically determined. Haddon,(1973), argues, that attempts to depoliticize organisation by way of theorising is absolutely misleading, the productive enterprise cannot be considered in exclusion of the economy or policy since it operates in an economic and political environment.

2.5: Political Perspective of Structure

From a lay perspective politics is simply what politicians do and say in their struggle for power. However, it is difficult to conceive politics as part of what goes on in a work place and that it actually impact on work processes, salaries, promotion, demotion, management, and every other aspect of organisational life.

Weber,(1918), in presenting his lecture on Politics as a Vocation, argued that the concept of politics was broad based and comprises any kind of leadership in action.

Politics deals with relations of power and is basically concerned with political institution of the state, it is about power and how it is distributed (Schwarzmantel, 1987). Power is thus viewed as that relationship between an individual or a group in which one has the capacity to impose their will on other. Politics is therefore about power and the exertion of power to dominate, constrain and subject people to some sort of authority, there, politics prevail. Emerson,(1962), succinctly suggests that the power to control or influence the other resides in the control over the things he values, which are varied, depending on the relation in question. Power therefore is inherent in others dependence. Salaman(1979), points out that activities within organisations, objectives, philosophies, structure, membership, are all political. Similarly, Albrow (1968), suggests that organisations must be studied as societies characterised by the same sorts of conflicts and struggles that take place within the wider society, thus conflicts and politics are routine features of organisational life as with societal life.

Morgan, (1993), further argues that organisations that are bureaucratic, autocratic, technocratic or codeterminate have political significance that vary in nature and in principles of legitimacy and any organisational decision involves political choice. Organisational politics is derived from people thinking differently and want to act differently, the differences that arise must then be resolved through political process, either democratically, autocratically, bureaucratically or technocratically, any one of the approaches involves the interplay of interest, conflict and power. Interest embodies factors such as values, desires, goals, expectations that make a person behave in one way instead of another. In organisations, interest centres around tasks performed by the individual. However, people bring to the organisation their life goals and aspirations, which are

sometimes independent of jobs being carried out. Furthermore, personal interests, values, beliefs, attitudes, preferences and commitments external to the workplace impact on job and career.

The degree to which these influence job performance varies from individual to individual. For example, while some may prefer to pursue rigorously career interests others may decide on personal interests, others may even succeed in achieving their interest in all three areas. In the context of the broader organisation, there are many actors with divergent interest, the attainment of individual interest would therefore result in political wheeling and dealing, bargaining and gamesmanship. The organisational structure therefore comprises loose networks of people with varying interests gathered together out of convenience and forming coalitions (Morgan,1993). Coalition of diverse interest groups within organisations facilitate attainment of individual goals and advancement of power.

However, when there is collision between interests, conflict arise, which may be within ones self, with others, between groups, and may be overt or covert. Differences in goals and interests create interdepartmental and inter organisational conflicts at a macro level. An example is the relationship between professional and non professional groups in a health care setting, between doctors and nurses. As mentioned earlier organisational conflict often become institutionalised and forms part of the fabrics of the organisation, depicted in its ethos or culture and power is a tool for conflict resolution in organisations.

Thus the implicit meaning of power as the property of relationships between people. Many sources of power are identified and utilised in the shaping of organisations. The most common source of power in an organisation is legitimate power, acquired through formal authority. Although organisational structure, rules and regulations are recognised as rational means of facilitating organisational

performance, they have equally been identified as products and reflections of a struggle for political control (Morgan, 1993). Similarly the ability to exercise control over scarce resources provides an important source of power. Scarcity and dependence are thus the keys to power.

Other sources of organisational power include the control of knowledge and information, decision processes, technology, counter organisations, boundaries, the ability to cope with uncertainty, interpersonal alliances, networks and control of informal organisation. Others are symbolism and the management of meaning, gender and the management of gender relations, and the power in ones possession.

Earlier perspective the machine and organismic viewed organisations as formal, rational entities, comprising interrelated parts, where co-operation and co-ordination led to attainment of organisational and individual goals. In contrast this perspective posits that there are conflicts and strain, tensions, personal interests and the quest for power that are potentially disintegrative. This results in wheeling and dealing, bargaining, gamesmanship, establishment of semiautonomous structures as part of the design of the organisation.

The implication is that organisational power struggle which affects behaviour of individuals would invariably impact on the information system in various ways, during planning, implementation, resource allocation. Furthermore, control of information by certain level of the organisation provides additional source power and instrument for control. Albeit, this perspective brings to focus less obvious aspects of organisational life that affect organisational design and activities, it is however not prescriptive and does not suggest perception of organisation from only this point of view nor its application in all contexts. Within the Bama PHC information system for example, it enhances understanding of some aspects of

organisational activities but fails to address others. Moreover, its relevance may not necessarily be applicable to other organisations in the same context.

Others suggest that organisational structure and functions are greatly influenced by the socio-cultural environment. The relevance of culture in organisations has gained unprecedented attention in recent times. Many argue that the failure of structure to provide the binding element in organisation led to interest in culture as a possible answer to this enigma. Particularly since the seemingly miraculous transformation of Japan's economy out of the debris of the second world war to one of the post prosperous industrial nations in the world. While theorist argue about the reasons for changes in Japan economy, many believe that the culture and the general way of life of the people were major contributory factors(Mogan, 1993; Dawson, 1993).

2.6: Cultural Perspective on Organisation Design

The significance of culture in organisational setting is tied to recognition of the symbolic aspects of organised collectivities and management as a symbolic activity (Pondy et.al.1983; Smircich et.al.1982). The systems and the radical structuralist perspectives advocate totalism and holism in the study of organisation, the internal and external interrelationships. From the radical structuralist approach the notion of totality implies the study of total social formation in order to understand its component elements (Burrell,et.al.1989).

Organisations are better understood in relation to the wider social formation in which they exist. This perspective, posits that structures are concrete entities that exist independent of our conscious recognition of their extant, but are only part of a

greater structure which they reflect. Wider social change, that lead to structural contradictions and dislocation inevitably spill over to organisational structure.

The definition of culture has however been problematic in the field of organisation studies as well as in anthropology where the concept of culture evolved (Smircich,.1983). For example Hofstede (1990), argues that people acquire mental programmes that lead to the creation of patterns of thinking, feeling and action. From this point of view he defines culture as the collective programming of the mind which distinguishes members of one group from another.

On the other hand interpretative social scientists regard culture as web of meaning, organised by symbols and representation, social reality is an emergent process and an extension of human consciousness and experience. The social world is thus created by symbols and meanings made by human beings. The study of culture thus implies an understanding of social significance of how things, events and interactions become meaningful, leading to the study of the world (Berger,.et.al.1967; Geertz,.1983).

From a management perspective where culture is viewed in terms of the organisation, it is the set of shared values, beliefs, attitudes and norms that determine behaviour and expectations of organisation's actors (Hicks, 1993; Stone,et. al. 1992). Culture can also act as a form of control mechanism as pointed out by Scott (1992), where organisations rely mainly on an informal structure and individual participants, with common norms and values that can orient and direct their contributions.

The concept of culture in the study of organisation can either refer to the corporate culture or the culture of the wider social structure within which the organisation exist and operate. Culture may therefore be employed as an external

independent factor that affect the organisation or as internally derived, depicting various characteristics of the organisation such as values or style.

Hofstede(1980), in a series of study on national cultures and their impact on organisational culture, examined national work related values of forty countries from different regions of the world for six years from 1968 to 1972, involving 116,000 respondents. Four criteria by national cultures differed were identified: Power distance, indicates the extent to which a society accepts that power in organisations and institutions is distributed unequally. For instance low power distance societies advocate interdependency of people while large power distance advocate independence for a few people and dependency for most members.

Uncertainty avoidance, implies the extent to which a society feels threatened by uncertain and ambiguous situations. To mitigate exposure to such situations societies may increase career stability, more formal rules, intolerance to deviant ideas and behaviours, belief in absolute truth and employment of expertise. Intolerance to ambiguity results in hard work among members of the society.

Individualism/collectivism, refers to a preference to either tight or loose social collectivities, which determines the degree of group support and bonding in the society. For example, in collectivist societies people born into extended families are protected and supported by the group, in turn provide loyalty. In individualist groupings however, each individual takes care of him/her self and perhaps immediate family members.

Masculinity/femininity, is the extent to which dominant values in the society are masculine. Attributes such as assertiveness, acquisition of wealth, not caring for others, the quality of life or people. In more recent work Hofstede,(1990),added a fifth dimension, the trade off between long term and short term gratification of needs. These studies culminated in the conclusion that corporate culture is

predominantly derived from shared experiences and values from the wider social setting.

Similarly, Austin, (1990), purports in developing countries for instance cultural diversities dictate the need for varied management strategies and suggested five dimensions of culture: social structure and dynamics, implies the nature of relationships and interactions within collectivities; human nature, relating to perception about goodness and dynamism of human nature; time and space orientation, relates to attitudes to temporal behaviour and physical relationships; religion, as a means of values and power; gender roles as determinant of the distribution of tasks in the society; and language encompasses cultural traits in the communication process.

The cultural perspective suggests, better understanding of organisational work habits could be derived from values and beliefs of the wider society. With diversity of cultures, each cultural set affects organisations in different ways. The complexity is such that cultural sets differ within the same society and thus organisational behaviour in similar organisations, at different regions of a given country might be affected by different values and traditions and thus produce varying outcomes.

Lammers et.al.(1979), in study of cross cultural differences and organisational types, suggest at least three cultural types. A Latin cultural form of the French, Italian and Spanish organisations, characterised by relatively high centralisation, rigid stratification and sharp inequalities among levels, with conflicts around areas of uncertainty. An Anglo Saxon type of Britain, the United States of America and Scandinavia, that is more decentralised, with less rigid stratification and more flexible in the application of rules. In the third world countries, a traditional form exists, with more paternalistic leadership style, implicit rather than explicit rules with

less clear boundaries in the separation of organisational from non organisational roles.

Another study by Lincoln, et.al. (1986; 1990), in which 55 American and 51 Japanese firms were contrasted. Results showed that firms in Japan were less specialised with taller hierarchy regardless of technology than their American counterparts. There was weaker relation between work flow rigidity and centralisation measures in Japan. It was therefore concluded that the impact of technology on structure was much stronger in the American firms, in the Japanese context the design of the organisation tend to be detached from technology and more in tune with the needs of the human work force.

Similarly, Maurice, et. al. (1980), examined the organisation of work in nine factories, three each in Britain, France and Germany using Woodward's classification of mass production, small batch and process in relation to technology. Significant and consistent differences were reported by country in the organisation of work. French firms concentrated expertise and decision making in top managers and specialist staff. British firms on the other hand were said to be intermediate, while German firms showed higher levels of worker expertise, flexibility, and autonomy regardless of technological complexity.

Organisational culture which may embrace varied orientations in itself, is reflected in the value placed on information and the manner in which data and information are managed. The design of an information system must be carried out with due consideration of such diverse cultural proclivities of the organisation in which it exists. For example an organisation that avoids risk taking would ensure availability of accurate, relevant and reliable information for decisions. However, in contexts where data and information are accorded less respect, the design of the

information system would perhaps give attention to changing attitude of those involved in the information system.

Each of the perspectives examined thus far tend to be restrictive with focus on particular attributes of the organisation or the environment. In contrast the contingency theory argues the lack of one best way to structure, appropriate organisational structure depends on contingencies that confront it, such as the technology used by the organisation, environment in which the organisation exists, the size of the organisation and tasks performed.

2.7: Structural Contingency Perspective

The structural contingency theory seems to be a dominant frame of reference for organisation structure, perhaps due to the inherent flexibility which allows for examination of diverse organisations, their structure and performance relative to their context. For instance Lawrence et.al. (1967), assessed the relationship between internal arrangement and the environment of plastics, food processing and standardised container industries. They concluded that the most relevant attribute of an organisation's environment for management is the level of incertitude, which affects formation of structure.

High level uncertainty affect different parts of the organisation and activities, division into subunits of specialised functions, that can be handled along formal lines of authority and procedures is an adaptive mechanism. However, when the level of uncertainty increases, formal rules and procedures become inadequate for dealing with unexpected events, more decisions to be made rather quickly, resulting in overload of the communication and information systems. Consequently, the creation of lateral relations, liaison roles and integrating departments will

decentralise decision making to the level of the organisation where necessary information are available.

Studies that identify organisational characteristics and their capacity to effectively operate in varying environmental situations include those of Mintzberg, (1979). After a series of studies, five types of organisations were identified to include simple structure, machine bureaucracy, professional bureaucracy, divisionalized structure and adhocracy. In the simple structure, there is a small single unit with a few senior managers, a small work force and no specialised staff, the chief executive has direct control of workers and information exchange is often informal with a great deal of flexibility.

On the other hand, a machine bureaucracy is highly formalised structure, decision making is centralised, departments divided according to functions and emphasis is on work standardisation. Reflective of large established organisations that function in less dynamic environment. Professional bureaucracy typifies organisations that depend on large numbers and diversity of professionals, for example hospitals and universities, with high degree of decentralisation in decision making, standardisation predicated on skills of professionals and limited use of first line managers.

The divisionalised design comprises numerous independent organisations co-ordinated and controlled by a cluster of central administration. The main organisation is often large and each department is given considerable autonomy. Contrary to expectation decision making is centralised with control concentrated in the hands of departmental managers, power is in the hands of a few administrators. In contrast adhocracy a term supposedly coined by Warren Bennis to describe organisation designs that are temporal in nature with fluid structure and power continually shifting among teams of professionals and technical experts,

lateral communication and integration is emphasised, co-ordination is often achieved through mutual adjustments among teams.

At the core of Mintzberg's work is the presupposition that effective organisation depends on the development of neat set of relations between structure, size, age, technology and the environment. Recent studies by Peters et.al. (1982), on excellent companies in the United States of America, suggest that innovative organisations, are market driven, operate in dynamic environments and designed along the line of adhocracy/organic forms.

How is the right structure for a particular environment determined, where is the balance between internal and external arrangements drawn? Organisational development experts, merging ideas from systems and contingency approaches have tried to operationalise this concept. Through their efforts diagnosis of an organisation could be carried out by asking a series of questions about relationship between organisation and the environment and a prescription arrived at which would treat organisational problem.

Primarily the nature of the organisation's environment is determined, which is either simple and stable or complex and turbulent. The degree at which the interconnections of various environmental components, changes occurring in the socio-political, economic, technological, labour relations and market arenas are discernible and understood. Prediction on the chances of a new development that could drastically change the environment. The next stage is to determine types of strategies or no strategy adopted and technologies utilised by the organisation, composition and strength of the work force and culture of the organisation. Organisation's structure and favoured managerial beliefs are delineated.

Through such analysis Burrell et.al.(1989), believe that the level of congruence between the interrelated subsystems of strategic, human, cultural, technological,

structural, managerial and environment are discerned. The aim is to bring the numerous variables close to a healthy level of congruence through design thus providing the organisation with the capacity to meet environmental opportunities and challenges.

However, Galbraith (1977), proposed a contingency theory slightly dissimilar, with focus on information processing. He argues that environmental uncertainty permeates organisation by affecting tasks performed, the greater the level of uncertainty the greater the quantity of information to be processed and used by decision makers in order to attain a certain level of performance. The structural arrangement determines the information processing capacity of the organisation and thus its ability to respond to environmental demands. Zald, (1970); Pfeffer and Salancik (1978). from a organisation ecology perspective, argue organisations are not separate from the environment but exist as components of the complex ecosystem, their evolution can be better understood at a higher level of the total ecology. The understanding of the structure of an organisation lies in the understanding of the context in which it operates and since no organisation is self sufficient resources must be derived from the environment in competition with other organisations.

This need for resource leads to organisational dependency on the environment, the level of scarcity of resource determines the level of dependency, which leads to the exercise of power. Economic dependency on the part of organisations lead to political problems which may thus require political solutions(Emerson, 1962). Organisations and their environments are thus involved in what Morgan(1983), termed pattern of cocreation, each reproducing the other. Consequently, organisations actively influence their environments and their future, especially when they co-operate with other organisations in the environment.

Problems with the Contingency Theory

The strength of the contingency model is inherent in its flexibility which allows for adaptation of structural arrangements in relation to changes in internal and external circumstances, recognition of the strong interrelationship between the organisation and the external dynamic environment. Leading to the belief that effectiveness of the organisation is dependent on its ability to cope with environmental demands which is determined by the way various elements or parts are designed.

Albeit this perspective is widely accepted, it is however bedevilled with infinite number of problems. Assuming that structure is contingent on something, the question is on what? This seems to be a source of weakness in the contingency theory. Study on different variables and of similar variables by different researchers have all yielded diverse results, different measures have been employed, some studies are on the relationship between structure and technology was at the level of the organisation, while others used the work group or department as level of analysis.

Lawrence and Lorsch (1967), for example focused on the study of high performance organisations in three environments; Burns and Stalker(1961); Duncan (1972), focused on the environment. Hage and Aiken (1969) examined the relationship between task routines and structure. While studies by Hall et. al. (1967), Blau (1970), examined the effect of size on structure. Findings have equally yielded contradictory results, for example the study by Tosi, et.al.(1973), annulled the validity of Lawrence and Lorsch,s uncertainty scale as unreliable and did not correlate with various measures of firms and industry volatility.

Are these variables not interrelated and interactive and perhaps require a more holistic approach. Some have employed what is termed a "mixed master" method,

whereby data on technology, and structure is collected from various participants or work groups and the combined to produce overall scores. The Ashton group Hickson, Pugh and Pheysey (1969), aggregated data collected by interviewing chief executives and department heads into work flow integration, providing a single measure to characterise technology of the organisation as a whole.

Often researchers presuppose the existence of defined goals being pursued by all participants, managers and workers alike. However, it seems that too much influence is accorded organisation, rather than on interrelationship between the organisation and the environment. Since inertia is suggested as a form of pressure that often impede organisations from changing in response to the environment. The effect of resource limitations on structuring the organisation, its development and decline and how successful innovations shape new species of organisation. The strength of this argument lies in the notion that the environment selects organisations for survival on the basis of the fitness of the organisational forms and characteristics of the environment.

This point of view seems typical but provides no explanation on the exact evolutionary process of organisations, if accepted on face value; neither does it account for the impact of decisions and actions taken by managers and other actors in the organisation. Emphasis on resource scarcity and competition as a means of determining the shape of organisation seems rather narrow, simplistic and assumes resources are always scarce, which is not always the case.

2.8: Summary

The significance of organisations in contemporary society cannot be disputed, due to their impact on almost every aspect of social life. The organising of organisations, their size, functions are diverse, and affect those within and outside

them in many different ways. Similarly, discussions in this chapter, are indicative of the different perspectives on how organisations ought to be structured, depicting the diverse academic disciplines involved in the study of organisation.

The mechanistic or rational systems perspective, considers organisations as instruments designed for attainment of predetermined goals, with emphases on effectiveness, efficiency, co-ordination and co-operation. There is little consideration for the social aspect of organisational life, goals and aspirations of humans involved in the attainment of these goals. On the other hand, the organismic or natural school of thought, emphasises the nature of organisation as a social structure, in which there is interplay between the needs of people and those of the organisation. Organisational goals cannot be effectively attained without due consideration of the goals of those within it. However, both organisational goals and the goals of those of workers seem to be influenced by some factors in the wider society.

The interrelationships between different components of the organisation as well as with the wider society are emphasised by systems theorist. However, the political perspective perceives organisational structure as a source of power and control, the emphasis is to recognise the impact of politics on structure and operations of the organisation and as part of organisational life. Similarly, the cultural perspective recognises the impact of wider social structure on organisations. Prevailing culture, values, beliefs and attitudes within the wider society have significant influence on organisational structure and functions.

With these divergent ways of perceiving organisation, its structure and process, the structural contingency perspective posits, there is no one best way; each perspective does not provide explanation to all events in a given context; rather structural arrangement depend on internal and external factors; and effectiveness

are dependent on organisation's capacity to cope with environmental demands, and there may not be one best way of conceptualising such coping.

Considering the multitude of organisational theories both traditional and contemporary, it is important to understand that ideas proffered and claims made by each school of thought do not necessarily amount to applicability in all contexts and all types of organisations. For example, organisations in developing countries are often confronted with factors not common to those in the developed countries, that impact greatly on organisational design and operations.

CHAPTER 3

QUALITY IN HEALTH CARE AND THE INFORMATION SYSTEM

3.1: Introduction

In chapter one, concepts relevant to information systems and generally accepted quality attributes were discussed. To assess quality of the Bama MIS, tested quality assessment methods must be examined to gain some insight into the most appropriate approach for quality assessment in Nigeria.

However, systematic quality measurement in health care is a recent development, with focus on clinical care. Quality assessment of non clinical subsystems is not common. In addition, quality assessment measures currently applied in health care are often adapted from other disciplines, specifically business or industry where quality activities are long standing. This chapter examines quality concepts and models in health care and a review of quality development in industries, which would perhaps enhance understanding of quality initiatives in the health system.

3.2: Quality Concepts Defined

The term "**quality**" derived from Latin word "qualitas", from "qualis" implying how constituted, the components of an element. Quality inherent in the element, consequently its quality cannot be altered without altering that element (Shewhart, 1931). Furthermore, there are two sides to quality, one is predicated on objective reality independent of man and the other is subjective, expressed when attempt is

made to determine the goodness of a thing in terms of the value of its objective physical properties. Radford (1922), defined quality as characteristics or group of characteristics which distinguishes one article from another, or the goods of one manufacturer form those of his competitors.

These early ideas perhaps gave impetus to contemporary definitions, the British Standard Institute (1991), views quality as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs. Quality is also a basic business strategy that provides goods and services which completely satisfy both internal and external customers, by meeting their explicit and implicit expectations (Tennet, et.al.1992; Demming, 1981; Juran, 1988; Crosby, 1979).

Definition of Quality in Health Care

The determination of what constitutes quality in health care has posed considerable problem to health professionals and scientists, perhaps related to the difficulty in arriving at a universal definition of health. From whose perspective can quality be defined and what are the criteria for setting standards?

Roemer, et. al. (1988), sees quality as the degree to which resources for health care and services provided correspond to specified standards, when applied lead to desired results. Ovretveit (1992) purports quality health service satisfies a number of sometimes conflicting requirements and interest groups. A service may satisfy client and professional definition of quality, be effective but utilises more resources than is necessary.

Quality service to the patient does not connote meeting client's needs at any cost but rather employs efficiency in use of resources. Similarly, certain legal, ethical, contractual and political requirements of higher authorities are considered in determining quality of services. Hence his definition, quality is meeting the needs

of those who need the service most, at lowest cost to the organisation, within limits and directives set by higher authorities and purchasers. However, Donabedian,(1980; 1990), argues that quality comprises two parts, technical/scientific and interpersonal. The scientific component relates to application of science and technology by health professionals, while interpersonal is the social and psychological interactions that prevail during care process, between client and practitioner.

(Vuori, (1982); Maxwell, (1984), identified six dimensions that could be addressed in quality assessment. *Accessibility,* that is not compromised by constraints of time and distance; *relevance* of services to the needs of the community, providers and patients; *effectiveness,* the degree that services achieve intended benefit to individuals and general population; *equity,* in terms of fairness in sharing of available services to all those who need it; social *acceptability,* the extent that services satisfy expectation of patients, providers and the community; and *efficiency,* iin terms of approriate resource use and not wasted on an individual or one service at the detriment of others. Each dimension requires separate attention, varying measurement tools and assessment skills.

Similarly, four components are identified by the World Health Organisation,(1983). Professional performance (*technical quality*); resource use (*efficiency*); *risk management* (the risk of injury or illness associated with services provided) and *patient satisfaction* with services provided.

Quality Assessment implies measuring the level of quality of care at some point in time, with no efforts to change or improve the level of care (Brook, et.al. 1975, Vuori, 1982). Quality assessment in health care will show areas of accomplishment in relation to established standards, identify areas of deficiency, provide opportunity for the comparison of a health programme with similar

programmes, health systems, health status, resource investment and practitioner effectiveness. Quality assurance in health is only derived when corrective measures are implemented.

Quality Assurance is thus assessment plus action to correct identified deficiencies necessary to improve services predicated on outcome of measurement. Vuori, (1989), proffers a rather broad definition, quality assurance implies that each patient receives a mix of diagnostic and therapeutic health services that would produce the optimal achievable health care outcome for the patient, consistent with the state of prevailing medical science and with biological factors such as the patients age, illness, commitment, secondary diagnosis, compliance to treatment; minimal use of resources to achieve results; the lowest risk of iatrogenic problems; and maximal patient satisfaction with the process of care, interaction with the system and as the results of care received.

How can quality in the health care system be determined and measured? A review of how health services quality has developed, is an enabling factor in understanding tools and approaches for quality measurement, which cannot be adequately addressed without understanding its development in industry.

3.3: Quality Development in Industry

Contemporary management theorist argue that Taylorism and the advocacy for division of labour of the mechanistic approach mitigated quality that was part of skilled craftsmanship. Flood (1993), argues, that mass production led to poorer quality products and quality was no longer built into the product.

The World Wars had profound effect on the development of quality initiatives, the First World War led to identification of approaches for development of quality. In Britain for example, the Technical Inspection Association was established in 1919, while similar initiatives took place in other parts of the world, among which were the works of Shewhart (1931), of AT&T, in America. Shewhart's work on quality control predates this period for in 1925 he published the Application of Statistics in Maintaining Quality of Manufactured Goods and in 1926 publication on Correction of Data for Errors on Averages; Quality Control Charts.

Attention to quality dominated the period of the Second World War, the need for reliable products, manufactured under tight specifications, consistency of product, interchangeability and cost containment were required in order for strategies designed by operation researchers to yield expected results. Documented quality standards were thus first utilised by defence industries in Great Britain and America.

However, despite wide range of product standards available, inspection for conformance was the only interface between product and standards. Khan, et al (1983), posit that the amount of inspection required, at what stage of manufacture and what amount of the product required inspection to indicate confidence in quality were unclear. On 7th of November 1943 the Society of Quality Control Engineers was established. The aim of the society at that time was to collect, analyse and disseminate information concerning quality control as applied to industry (Brumbaugh, 1944).

The Military Specification Quality Programme Requirements, an American military standard, established in 1963 was the earliest quality management systems, which later became basis of other quality standards. After the Second World, many standards for quality were developed by industries and groups concerned with the enactment of quality were established in America and Europe.

Quality Standards and Accreditation in British Industry

In 1979 the British Standard Institute published the first general standards known as (BS 5750), due to government concern at raising the standard of quality assurance among government contractors, as explicated in the 1967 White Paper, on Public Purchasing and Industrial Efficiency. Similarly, the 1977 Warner Report, on Standards and Specifications in the Engineering Industries, advocated development of a national quality management system, to eliminate the numerous standards and assessment procedures.

BS 5750 aims to preclude nonconformity at all stages of production from design through servicing; specifies quality management systems requirements; provide a basis for contracts between purchasers and suppliers; aid varying sorts of organisation to establish a clear, written and practical quality management system; provide a means of ascertaining capability of prospective supplier; and raise standards by promoting quality as competitive weapons (BS, 1987). The International Organisation for Standards published the ISO 9000 in 1987, fundamentally based on BS5750 but reflected international requirements (Flood, 1993), then the European Community version, EN 29000. The three have however been harmonised to be equivalent, culminating in development of the International Quality Assurance Management Systems Standards (IQAMSS).

Today, aim of managers implementing quality measures in organisations is to win the seal of ISO 9000.or BS 5750, which are attained by meeting standards, based on stipulated guidelines. Seals are recognised as symbols of quality in manufacturing and service industries and have become factors in winning contracts and customers, by implication organisational survival to some extent depends on it.

IQAMSS thus provide general standards applicable to a wide range of organisations that are not product specifications but rather management systems

standards, with the view of assisting organisations provide quality services to customers at all times, emphasis is on total organisational participation in quality attainment. Standards are based on the principles that effective operation of quality management system is predicated on a total systems approach and quality auditing on a continual basis is imperative; objectives and functioning of the total system be fully documented with clear delineation of systems, procedures and operational methods; staff adequately trained with appropriate qualifications and skills in job related and quality management; commitment from upper echelon is imperative; and adherence to traditional organisational structure, the division of responsibility and system of communication established.

The ISO 9000 comprises five sets of guidelines, ISO 9000 to 9004. ISO 9000 is an introductory guide to the selection and use of a specific ISO standard. ISO 9001 is on specification for design, development, production, installation and servicing. ISO 9002 is on specification for production and installation. ISO 9003 on the other hand is titled Specification for Final Inspection and Testing. The ISO 9001, is the comprehensive model, it starts with three introductory clauses the fourth group of clauses cover main clauses required for certification and provides guidance on quality system elements.

Accreditation of British organisations is carried out by an approved accrediting body, based on a series of requirements, which entails meeting BSI or ISO requirements reflected in the quality systems model consisting of twenty elements.

(1) Management Responsibility, requires clear written statement of organisational quality policy and procedures, effectively communicated throughout the organisation, delineating structure and responsibilities within the organisation with explicit approaches to monitoring and ensuring that product meet customer requirements. Jobs are defined to

reflect quality requirement, experience and qualifications of those involved in the quality process. Management representative are appointed to ensure effectiveness of the quality system and satisfaction of internal and external customers.

(2) A quality system implies the establishment and maintenance of a documented quality system in the organisation with delineation of how the system is implemented, updated, maintained, and integrates the functions of management. It describes organisation's approach to quality management while recognising the inter relatedness of suppliers needs, and demands with customers needs and expectations.

(3) Procedures for contract review are established and maintained, as well as the co-ordination of related activities.

(4) Procedures for control and verification of product design are established and maintained.

(5) Organisations are required to establish and maintain procedures for control of documentation and data pertaining to accreditation requirements. All documents are reviewed and approved by authorised personnel before issue and placed in the organisation such that all involved would have easy access to them.

(6) Assessment of quality in respect to agreed specifications are required.

(7) Organisations are to establish and maintain procedure for verification, storage and maintenance of purchaser supplied items.

(8) Procedures are to be developed to trace a product through the various stages of its production, delivery and installation, which facilitates identification of the stage and cause of failure when it occurs.

(9) Process control is required to ensure that process steps are identified and plan for implementation documented. Plans are carried out in controlled

condition that ensures attainment of plans in accordance with established standards.

(10) Inspection and testing requirements are established to ensure that no incoming product is used or processed prior to inspection or verification, which is based on written procedures.

(11) Suitability of inspection measuring and test equipment are assured and procedure for calibration, inspection and control of measuring and test equipment established.

(12) Inspection and test status of any product are cleared at all times to ensure only products conforming to requirements are despatched, used or installed. Failure or passing of the product is indicated with appropriate markings and records of individual responsible for product available.

(13) Procedure are developed for averting the use or installation of non conforming product are established, such products clearly marked and reasons for rejection indicated.

(14) Mechanisms are established for investigating and taking corrective action, measures taken to ensure that error does not occur again is well documented. System is established to prevent damage or deterioration during handling, storage, packaging and delivery.

(15) System is established to prevent damage or deterioration during handling, storage, packaging and delivery.

(16) Records are kept routinely on control and reporting document that indicate the progress of quality management system. Measures are taken to ensure easy access, prevent loss, damage or deterioration. Example of records to be kept are: audit of the quality system; calibration of test and measuring equipment; analyses of process control data; records of corrective action; records of concessions; records of the product test data.

(17) The organisation is to plan, execute and document a comprehensive programme for internal quality audits to ensure that the quality management system is conforming to planed arrangements, operating correctly and effectively and results of audit communicated appropriately and prompt action taken where necessary.

(18) Procedure is to be established for determining training needs and to ensure that training needs are met and records kept.

(19) Procedure for after sale servicing need to be developed to ensure that servicing meets requirements.

(20) There is the need for identification and use of appropriate statistical techniques check process.

It is important to reiterate similarity between ISO 9000 and BS 5750, their requirements and processes for attaining accreditation are similar. Clauses discussed above are applicable to all organisations regardless of size or type. Obviously, they were developed with business and industries in mind and not service organisations, were product is less tangible or obvious and inherent in the process.

There is advocacy in view of this, for each organisation to translate the model into a workable framework for its particular needs. Quality accreditation today has become very important business for organisations since there is growing possibility that unaccredited organisations may find it difficult in the near future to acquire contracts and business and thus face extinction. Sceptics however, argue that certification provides only a limited guarantee of quality, since some organisations are more akin to obtaining certificate of accreditation than on commitment to quality (Drummond, 1993).

The quality movement thus shifted from mere inspection of products and extended to prevention of defects during process of design and manufacture.

Control extended to include the determination of performance in behaviour of product under varying conditions through prototype testing, reliability programmes and field analysis (Khan,et.al.1983). All activities discussed thus far culminated in the discipline of quality assurance, later developed into quality management, which includes utilisation of feedback derived from quality assurance activities to maintain and improve quality. Through statistical process control, third party approval, system audit, quality planning, use of quality costs, involvement of non production operations. Today advocacy is on total quality management, that calls for involvement of the entire system in continuos quality improvement in operations at all levels of the organisation, appropriate leadership and management culture, training, team work, employee participation and motivation.

3.4: Total Quality Management (TQM)

Quality assurance in health care concentrates on systematic monitoring, evaluation and improvement of clinical practice, but considered limited in addressing quality problems of the wider health care system. Total quality management, developed in business, with a management philosophy which demands institutional commitment to improving quality at all levels of the health organisation is now being advocated.

Flood (1993), suggests the 1980s was an era of quality management due to increased competition in the world market, which has continued into the 1990s. Historically, TQM started in the 1940s in industries, Deming, Juran Crosby and Feigenbanm are regarded as early advocates of world wide quality movement. Emphases are on continuos improvement, customer satisfaction and removal of undesirable variation by improving work processes.

Deming (1966), an American scientist and a student of Shewhart, focused on quality attainment through the removal of variability, identification of causes of variability would lead to its elimination, thus greater consistency in production output. This philosophy was founded on the precepts of customer orientation, continuos improvement and quality determination in the system. Customer satisfaction is paramount, attained by meeting their explicit and implicit expectations (Tennet, et.al.1992; Demming, 1981; Juran, 1988; Crosby, 1979). Tenner, et.al., (1992), suggest that process improvement transcends quality assurance, inspection, operations and production, improving quality depends on an integrated approach along the entire customer/supply chain.

Deming posits the system of work determines how work is performed and managers and since managers create the system, quality is a consequent of senior management actions and decisions rather than actions taken by workers, who ,are however responsible for the resolution of problems caused by actions directly under their control. In the event that process stability or elimination of variations in work process is not achieved by workers' actions, management redesigns the system. A model was developed for implementation of TQM predicated on three fundamental principles of total quality.

TQM Model

The main focus is on customers, whose needs, expectations and requirements are supposed to be met every time. Process improvement focuses on continuous attention to each step of the work processes, leading to reduction in variability of output and improved reliability. Failure to achieve this necessitates re-examination and redesign of the work process in order to satisfy customers needs and expectations.

Total involvement stems from the right leadership and management culture that could secure the commitment and harness talents of workers in the organisation. Attainable through a flexible work structure which empowers employees to control quality of outputs, participate in decision making and problem solving, improve work process, which leads to job satisfaction and subsequently customer satisfaction.

Senior management leads the way in application of TQM concept by applying relevant tools and language, use of relevant data, recognising and supporting those who apply the concept. Provide education and training as essential components, since quality is dependent on the knowledge and skills of employees, their ability to understand what is required and how to do the job. Training provides information on the objectives, vision, direction and strategy of the organisation as well as the skills required for quality improvement and problem solving.

The right organisational structure with appropriate communication network for dissemination of information and reception of feedback, with adequate reward systems are essential for implementing TQM. External customer satisfaction is measured through the collection of data which provides objective, realistic assessment of performance and helps those involved to address real problems based on facts.

Process Improvement is the key to attaining quality service and customer satisfaction. TQM emphasises process improvement with the presupposition that a good production process would most likely produce quality output. Deming argues that the process of inspecting every part of the production process is inefficient, where the production process is good , quality is built into the system and not inspected.

The Zero Defect concept emanating from this point of view is based on well established infrastructure created through well conceived bylaws, rules, regulations, policies, procedures and job descriptions. Emphasis is on conformance from the outset to prevent untoward events in the production process. The zero defect concept applies to the organisation in general and every worker in it. Focus is on those problems that can be prevented, establishing a sense of common purpose and provides for quality service within each individual's control. Keyser (1990), demonstrates potential benefits of the zero defect principle in the 1-10-100 rule, meaning that if correction costs 100 pounds or hours, inspection would cost 10 and prevention would only cost 1.

Steps to Process Improvement

Six steps are developed as universal approach to process improvement. The definition of problem involves identification of output and customers, definition of customers' requirements, identification of processes of production, required output and identification of those involved in the processes. Participants are identified either by name, position or organisation. All participants in the process are provided with a common understanding of their individual roles and steps in the process. Inefficient, wasteful and redundant steps identified and a framework developed for defining the process measurements. Performance measurement is established, customer requirements and level of expectations, output delivered, process parameters and cost of quality determined. Where there is no performance standards, this is established in relation to customer expectations.

Next is to understand why a system is performing the way it does. Major areas of problem are identified, root causes identified and variations understood, as well as common causes, special causes and capabilities. In the fifth step, new ideas are

developed, experimented and tested for the resolution of problems. Solutions are planned, implemented, changes identified and documented, performance evaluated, steps evaluated, participants rewarded and the cycle repeated if necessary.

Younger,(1993), argues that quality development in the United Kingdom follows one of two approaches, the organisation attains a quality management system through adherence to guidelines of ISO 9000/BS 5750 or develop TQM based on the approach of a particular TQM gurus. ISO 9000 is continuously modified for application in service organisation, with recent modifications published January 1993. Quality improvement in the health sector has gained moment, regretably, most activities are still concentrated in the developed countries.

3.5: Quality Development in Health Care

Quality initiatives in health care is a recent development, derived from established quality measures in industry, that are adapted and applied albeit sometimes with difficulty due perhaps to differences in the two systems. World Health Organisation (WHO), advocates that member states establish systematic quality measures that address effectiveness, safety, impact of services, patient acceptability and cost/benefit of services rendered. In addition performance of health care services monitored and evaluated on the basis of outcomes and results with feedback disseminated to all concerned (WHO, 1987).

Culminating in global concern for quality and development of methodical approaches within the context of national needs, while successful approaches are shared globally. A better definition of what constitutes quality is therefore required

(Graham, 1990). Similarly, Berwick, (1990), argues that new directions in the delivery of services are forcing health care industries to re-evaluate how quality is assessed and the use of information about quality of care provided could be used to challenge existing notions of the definition of quality.

3.5.1: Health Care Quality Initiatives in the USA

Health care quality in the USA, could be traced back to 1910 with Abraham Flexner's Report. In 1906 Flexner commissioned by the Carnegie Foundation, reviewed 155 medical schools to identify factors contributing to persistent poor health standards of the people despite massive resource investment in the health system. Results of the report published in 1910 revealed most medical schools were inadequate and physicians poorly trained. Consequently, many medical schools were closed. Reports show that 39% of the 155 were closed within five years and about 45% in ten years. Additionally, procedures for the licensing of adequately trained physicians were established; medical facilities were forced to upgrade standards or funds were withheld; government turned to the American Medical Association (AMA), to set standards for the accreditation of practitioners.

By 1925, the AMA, had the monopoly to produce and license physicians, gave the AMA exclusive right and power to regulate medical profession. In return it was to give society the best and most efficient medical care system. Notable changes followed, number of medical schools decreased from 175 in 1906 to 107 in 1920; schools of medicine demanded college education as entry requirement; medical education was upgraded to combine theory and practice; application of research results in hospitals increased; and procedures for the licensing of adequately trained physicians were established.

Paradoxically, Flexner's report was blamed for the lack of continuity. It is argued that with improvements in the structure and content of medical education after Flexner's report, it was no longer necessary to measure results of care delivered by doctors trained in the new medical schools. Similarly, Dr. E.A. Codman, in 1914, due to the lack of outcome assessment in health services, instituted a system of determining the long and short term results of surgical procedures, length of recovery, improvement of symptoms and whether procedures produced any iatrogenic effect. It was possible to ascertain to what extent initial objective for performing surgical procedure was achieved; original diagnosis correct; and success of the operation and its benefit to patient.

In the 1940s and 50s, there was a resurgence of quality activities in the USA, however, emphasis had changed as Brook (1976), suggests assessment was no longer based on end results of care, but on adequacy of diagnostic investigations and therapeutic interventions, the process of medical care. One school of thought suggests it was easier and cheaper to obtain information from medical records about what physicians did for patient. The use of new procedures and sophisticated equipment for medical diagnosis and treatment was very much in practice which did not encourage questioning the value of these procedures

Current emphasis in quality assessment and assurance are very related to increased government funding of health services, rising cost of medical care and poor level of quality. Paradoxically, increased health care cost has not precluded poor quality. Studies by OEDC indicate that America with the highest health investment per capita, cannot claim better health status than other western countries with much lower investment. Government as a major third party purchaser of health services for the poor and elderly had great stake in quality of health services, thus in the forefront of many quality initiatives.

The Utilisation Review Committee of Hospital and Physician Reimbursements, was established shortly after the enactment of Medicare and Medicaid in 1965, triggered by escalated cost of medical services far beyond budgetary expectations in early 1970s. However predicated on the reported ineffectiveness of the Review Committee, PSRO was established in 1972. Main objectives are: provide a system of medical peer review throughout the nation ; assure that services provided under Medicare, Medicaid and maternal and child health act were medically necessary, of a quality that meets professional standards and provided the most economical level consistent with quality care(Goran,1979).

The PSRO was the largest and most controversial of the quality assurance initiatives (Brook, et.al,1976). It had numerous short comings, ineffective, with variation in the structure, implementation process and performance nation-wide. The Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), was passed. TEFRA replaced PSRO with an initiative known as the Utilisation and Quality Control Peer Review Organisation, generally known as PRO. In 1984, the Health care financing Administration(HCFA), requested organisations interested in becoming PRO to submit proposals. It was estimated that in fiscal year 1990, HCFA spent $300 million to support PRO programmes. Functions performed include: review of claims for medical services submitted by hospital; assessment of whether or not services are reasonable in terms of medical necessity, quality of care and the appropriateness of setting in which health care was provided; reviews carried out concurrently and retrospectively. Again in 1983 shortly after TEFRA,

Congress established the Hospital Impatient Prospective Payment System (PPS). Prior to PPS, bills were often inflated past the actual cost of care delivered (Orsolits,et.al.,1990). It's implementation obviates hospitals from controlling their profit margin. Implicitly, Congress had expected hospitals to control their profit

margin through improved operational efficiency, rather institutions tried to make by increased volume through maximisation of the Diagnostic Related Groups.

This created anxiety , leading to a greater need for a strong review system. Joint Commission on Accreditation of Health Care Organisations (JCAHO).A voluntary non-governmental organisation concerned with standard setting, quality of hospitals and their services. The American College of Surgeons was established in 1913, one of its goals was the improvement of patient care in hospitals, a goal still paramount today. In 1918, the Hospital Standardisation Programme was established, hospital accreditation as a means of assuring quality was integrated.

A measure that proved successful since many substandard hospitals were denied approval. Later it was expanded to include the whole medical and hospital fields, thus establishment of the Joint Commission on Accreditation of Hospitals (JCAH), in 1952, it facilitated voluntary attainment of uniformly high standards of institutional care in all areas (Egdah,1976). In the 1970s, after the Medicare and Medicaid ACT, the JCAH expanded its accreditation to include facilities for ambulatory care, long term care, mental health etc. Health care managers and administrators were eager to go through the accreditation process, main incentives for accreditation were, an increase in prestige and the automatic certification by the federal government for reimbursement of services provided under Medicare and Medicaid programmes.

New quality assessment standards were implemented, hospitals were required to integrate their mortality, tissue, transfusion medical records and antibiotic committees into a single audit system. Standards for privileges, incident reports and the monitoring of clinical practice were defined and all hospitals were to have written quality assurance plan (JCAH,1979). In continuation of its aim for quality health care, in 1986 the JCAH implemented a new programme, the Agenda for

Change. The aim was to develop an outcome oriented monitoring and evaluation process that would help health care organisations in improving the quality of health care; increase emphasis on clinical component of the accreditation process; and highlight importance of both clinical and organisation performance outcomes (Roberts, et. al., 1990).

In view of JCAH broader scope of coverage and function, the name was changed to the Joint Commission on Accreditation of Health Care Organisations (JCAHO). Study results seem to show substantial variations across hospitals in the quality of care provided no matter what measures were used to assess quality (Wennberg, et. al.,1973; AMA,1986; Chassin et. al., 1986). Thus initiation of the Agenda for Change, a multi-year applied research and development project, directed towards the accreditation of health care organisations on actual performance and its continuous quality improvement.

Currently in the USA. and perhaps health systems in general, advocay is on effective integration of quality assurance(QA), and continuous quality management or total quality management as it is sometimes called. QA focuses on monitoring and evaluation of the process and outcomes of health care retrospectively, CQI is concerned with prospective examination of processes of health care services in general. Emphasis is on a more broader range of issues affecting the quality of health service delivery; provides tools and methods for prevention of problems and strengthening subsystems of health care systems; and a management philosophy which requires institutional commitment to improving quality at all levels of the organisation.

In order to successfully implement CQI, a reorientation of the management system is required, with emphasis on clarification of responsibilities and accountability, involves time reward for quality performance and promote

participation of employees in problem solving. JCAHO seems to be a leading force in this new initiative, efforts are rife in the application of CQI methods to improve management of health care organisations and standards developed for quality leadership.

3.5.2: Health Quality Development in Europe

In Europe quality development dates back to the early 1860s, with notable contributions of Florence Nightingale during the Crimean war. However this momentum was not sustained, perhaps due to lack of scientific definition of measures utilised. Similarly, although WHO Headquarters and the Regional Office for Europe have had long traditions in quality assurance in specific circumstances, quality assurance of personal health services is a relatively recent innovation (Vuori,1989).

In 1981, the WHO, Regional Office for Europe, launched the Model Health Care Programmes and Quality Assurance (MHCA), precipitated by the need to improve quality of health services based on scientific knowledge and experience, expected to enhance the provision of services of optimum quality; eliminate unnecessary diagnostic and rehabilitative procedures, decrease cost; help in the reduction of waste, overlapping of work, wrong investments, inappropriate division of labour between institutions; promote examinations and treatment with marginal utility; and eliminate irrational use of health services.

Studies in 1989 showed that no ministry of health in Europe had a person responsible for quality assurance. In 1984, the Who Regional Committee for Europe, approved 38 targets for the attainment of the global strategy for health for by the

year 2000. target 31 is directed to quality in health care, by 1990, all member states would have effective mechanisms for ensuring quality patient care

However, the possibility of a monolithic approach to quality assessment and assurance in Europe was dismissed, each member state would adopt methods and approaches developed and tested to organise and implement quality measures that are relevant to local needs. Great achievements are recorded, however countries are at disparate stages in the institutionalisation of health services quality. Some countries have undertaken massive restructuring of health system in order to integrate quality programmes. For example in Britain a very bold and ambitious step was taken by the government in 1992 to give the National Health Service (NHS), a new orientation that emphasises greater community care, accountability to consumer, efficiency and effectiveness.

Quality Initiatives in the NHS

The British National Health Services (NHS), is generally believed to have done well over the years not because of any established approach but rather due to the goodwill of its workers. Inherent in the principles on which the NHS was founded are mechanisms to assure quality services. Rees,(1989), suggests that Britain had no pattern of quality assurance because it was assumed that being a national health insurance non was required, unlike the U.S.A. where thriving barriers of litigation and the needs of Medicare and Medicaid programmes, coupled with pluralism in the system, quality assurance is now a major factor in health care.

Similarly, Maxwell, (1984), argues that perhaps American doctors are more subject to systematic evaluation of their practices than their British counterparts because there are few incentives in the NHS for over provision of medical services and therefore the need for a regulatory system to discourage abuse by providers

did not exist. In addition, medical professionals in Britain were allergic to any form of rational examination of their practice. Although the medical profession influenced standards of health care in many ways, observed the National Audit Office,(1988), there was however no comprehensive monitoring arrangement, clinicians were not required in explicit terms to evaluate effectiveness or be concerned with efficiency.

Similarly, Harrison, et. al.(1990), suggest that across broad areas of the NHS activity there was no direct assessment of the level of cure, care or improvement, in the late 1980s that many hospital record systems began to distinguish between deaths and discharges. Again Maynard, (1992), argues that perverse incentives in the NHS created lack of motivation to utilise knowledge of input/output relationships that were available to improve practice. Consumers and producers in the system due to moral hazards and third party payers had few incentives to economise and use resources efficiently.

Professional initiatives, the accreditation of training institutions for health care professionals and the setting of standards for practice by professional bodies is a long tradition in the NHS. An example is the confidential inquiry into maternal deaths, an approach in practice since the 1930s, applied by doctors to assess causes of maternal deaths, has contributed tremendously to progressive reduction in maternal deaths. In 1984, the Confidential Report into Preoperative Deaths (CEPOD), was initiated by the Association of Anaesthetists and that of Surgeons.

A voluntary process of quality assessment through peer review, which examines effectiveness and quality of impatient surgery. CEPOD arose out of concern for the considerable variance in preoperative mortality rates in similar problems treated in different places and by different surgeons. Similarly, in 1980 the Royal College of General Practitioners (RCGP), developed a framework for defining and adapting

standards of care, professional values, accessibility, clinical competence and ability to communicate are assessed. Soon after the RCGP's report government established standards for general practice(Harrison,1990). The White Paper Promoting Better Health was as a result of this initiative. These activities by the medical profession with inherent good intentions focused on professional education and development rather than attempt to improve services, was based on voluntary participation, the public and management had no access to results of reviews.

Medical audit based on peer review is now part of the national health system, following the 1989 government white paper a medical audit advisory committee was established by each Family Health Service Authority (FHSA) In contrast to past practice, FHSAs have access to results of medical audits of general practitioners. Similarly, hospital doctors set up audits in hospitals, aimed at systematic critical analysis of quality of medical care , including the procedures used for diagnosis and treatment, the use of resources and the outcome of treatment(White Paper, 1989).

Government Quality Measures

In 1960, the Department of Health created the Hospital Advisory Service, later renamed Health Advisory Service (HAS), in 1976. HAS comprised multidisciplinary teams visited long stay institutions to examine standards of care and gave recommendations for improvement. Each District Health Authority (DHA), was visited once every eleven to twelve years, report sent to the DHA involved and the Secretary of State for Health. However, publication of results only started in 1985. Quality assessment under this arrangement concentrated on long stay sector. The scope and impact of HA was limited, its report carries no mandatory force and recommendations are rather persuasive and not prescriptive (Day, et.al, 1988).

A National Clinical Chemistry Control Scheme began in 1969. Biweekly, material were sent to all participating laboratories for analysis, tests performed using set procedures and results compared. The scheme showed progressive reduction in the variance index and improvement in the consistency of results obtained by different laboratories. In 1982 a review process was set up in the NHS, annually, each level regional, district and unit, assessed performance of the level below, based on established objectives.

Currently the importance of quality is emphasised in reviewing Regional Health Authorities (RHA) performance by the NHS management Executive. Similarly, ,RHAs will ensure that quality measures are established at the DHAs and FHSAs within their region. Equally, the Rayner Scrutinies were set up in 1982, these were highly focused and quick reviews targeted at particular services, measures were taken to ensure that something got done about review recommendations (Harrison et.al,1990). Scrutinies regarded as high powered way of getting things changed for efficiency centred on community care, ambulance service and income generation.

The Department of Health (DoH), introduced a set of national performance indicators(PIS), in 1983 as practical and useful tools for management. PIS are systems and management tools based on comparative statistics to analyse data, assess performance against predetermined objectives, measure efficiency and focus on underlying problems(Payling et. al, 1987). There are approximately 500 PIS for the NHS Leger, et.al, (1992), with revision and amendment carried out continually. Each indicator quantitatively measures some aspect of clinical activity, areas of application are finance, personnel, support services and estate management.

Information for performance indicators are derived from existing routine data, this allows comparisons across health authorities in terms of absolute values of the

indicators used and of rankings within the region and the country (Harrison, 1988). Exponents argue that indicators do not address outcomes of treatment but focus on the use of clinical facilities, such as efficiency measures on average length of stay in hospital, through put of patients per year and occupancy rate. For example an indicator for medically preventable deaths was added in 1987; efforts are made to improve accuracy of data; and a more user friendly approach of presenting results is now applied. However, PIS still do not measure quality (Reese, 1989; Harrison,1988), neither do they provide information on efficiency or effectiveness, nor measures of performance, but simply describe them(Harper,1986; Leger,1992; Pollitt, 1985). PIS divided into clinical, manpower and financial enhance the consciousness of managers on the disparate levels of health care activities providing insight to areas that require further attention and investigation. Major problems with PIS are the patchy nature of implementation and voluntary utilisation, researchers and economists are thus advocating more systematic techniques that would assess outcome of medical treatment in order to determine comparative values of different health care activities as well as on what and how to spend money.

Aim of government in recent reforms is to establish an environment that enhances quality and efficiency in the NHS, in order to respond more effectively to needs of the population. Central idea is to create incentives for improvement by creating internal markets among components of the health system(Berwick et. al, 1992). In this context general managers of district health authorities are obliged to purchase services not only at lower cost but those that would give better outcomes as well. If the outcome did not meet need , more services would therefore be purchased thus additional cost accrued.

Predicated on this economic perspective improvement is anticipated to be based on results of reliable, natural laws of economics. Customers and providers could therefore find efficient solutions to their respective needs and problems based on sufficient information on quality of available goods and services, consistent and rational buyers and competent procedures. With these a market can consciously achieve efficiency and quality levels beyond those attainable by even the most talented planners(Berwick et. al, 1992).

3.6: Health Quality Models

3.6.1: Structure, Process and Outcome Models

Avedis Donabedian considered by many as father of academic enterprise on health quality assessment, carried out the most comprehensive study, and proposed the structure, process, outcome models in the late 1960s, which have gained wide spread recognition and application (Graham, 1990; Gaster, 1991; Closs, et. al.1993).

The Structural Approach

Structure, addresses relatively stable characteristics of the health system, including human, physical and financial resources that are needed to provide health services. The human component includes: the number, distribution and qualifications of workers, their organisation and working conditions. The physical aspect relates to the number, size, geographic distribution of health facilities, types of equipment available and the condition of these equipment utilised in the

provision of services, and how delivery of services are financed and organised both formally and informally.

Assessment of structure in health care services involves evaluation of the quality and quantity of the three sets of resources. The actual physical facilities in which care is provided, adequacy of required supplies, amount, type and condition of equipment. Staffing, the number of professional and non-professional staff, ratio of personnel to patients, qualified and non qualified staff, their qualifications and experiences. Provision of training and staff development. The third area is the structural or organisational arrangements, existence of up to date procedure manuals, composition of professional committees, adequacy of systems dealing with quality measures, record keeping systems, maintenance of equipment.

Structural assessment involves on site visit, criteria are set and standards established by accrediting or licensing agencies where applicable. Relevant documents are examined, staff interviewed and facilities examined to ensure compliance to stipulated standards. The structural assessment team is usually multidisciplinary, composition depends on the aspect of the system being assessed but includes administrative staff, an engineer, or sanitarian who has the capacity to evaluate physical aspect of the facility. In addition members of other professional bodies whose qualifications, organisation and equipment are being assessed are present.

Traditionally, site visit begins with meeting with key members of the facility in which procedures are explicated by the evaluating team. The team then divides up in accordance to area of specialisation. The data collection tool for structural assessment is normally list of items which each team member checks off based on observation. At the end of the assessment, an exit conference is held with administrative staff of the facility, at which an initial informal impression about the

assessment is presented. Continued licensure or accreditation of the institution depends on its ability to maintain standard or actions taken to correct identified deficiencies.

Advantages and disadvantages

Structural assessment is commonly used by licensing and accrediting bodies due to its advantage over other approaches, a rapid and straightforward, assessment tool, based on examination of existing records, interviews and on site examination of equipment and the facility in general. Assessment using this approach is easily conducted with the use of simple tools and do not necessarily require deployment of highly skilled staff and tend to be relatively cheap (Rosenberg, 1990).

The structural approach is equally considered more objective than others since criteria are explicit, deficiencies usually obvious and incontestable which are based on observable findings. Certain questions that are less likely to be answered by patients and staff on a questionnaire are easily observed by the assessment team. Structure is however an indirect measure of quality, which very much depends on how it influences care, with a positive or negative effect, resulting in either good or bad performance. The relationship between structure and quality of care is most relevant in planning, design and implementation of systems that provide health services (Donabedian, 1980). Good structure, that is proper systems design and availability of adequate resource would presumably facilitate the provision of quality services, this however is not always the case.

The Process Approach

Process comprises those activities carried out in the process of service provision. Donabedian, (1980), argues that the most direct means to assess quality

of care is by assessing the care provided, 'the process'. A problem solving approach, that involves identification of quality problems through a review process, in which good, bad, unexpected outcomes variations and deviations in the provision of health care services are identified. Standards are set and approaches to resolution of problems established, actions taken to implement corrective measures.

The process approach is both retrospective and prospective, judgement on quality of service is based on direct observation or by review of recorded information. It is predicated on a presupposition that if everybody did what was regarded as correct based on existing knowledge, the outcome of care would be better than if the correct process was not followed.

The retrospective approach involves sampling, selection and review of patients charts by professionals. Earlier in the application of this approach strict peer review was adhered, in the 1970s it changed to a two stage approach, where interdisciplinary review was applied. For example nurses will review the process of care provided by physician and a sub specialist would be recruited to provide second review of cases with potential problem. Non peer review is based on explicit, detailed, written criteria and standards developed by peer consultants. Deficiencies identified provide feedback for improvement, effected through education and managerial intervention. Medical audit is a commonly applied process method, based on established standard on which actual care provided could be compared.

Prospective approach involves direct observation of peer professionals during the process of service provision, it allows for observation of some aspects of care that were hitherto inaccessible, due to lack of documentation. Another approach for assessing the process of care, is to interview patients about their perception on

care received, to determine the presence or absence of recognisable deficient component of care and their eventual effect on outcome.

The Outcome Approach

Outcome is an indirect approach to quality assessment in health care, based on the extent that change in patient's current and future health status can be attributed to preceding services received. This includes physical, physiological, social and psychological improvements, as well as patient attitudes, health knowledge acquired by patient in the process. It aims to measure attainment of health care objectives, which include the reduction of mortality and morbidity rates; promotion, restoration and maintenance of health; alleviation of pain and suffering; promotion of patients ability to live socially and economically productive life; patients' satisfaction with health care services; and the provision of care cost effectively.

Application of the outcome approach has posed some problems, due to length of time between caring and final outcome coupled with the possibility of variables outside the health system impacting on outcome. Curren trials in comparing outcomes of homogeneous groups of patients, diagnostic related groups, disease staging, patient management categories, computerised severity index.

Discussion

A consensus is yet to be reached on which of the three approaches structure, process, outcome, is the best assessment method, each has its strengths and weakness. The structural approach seems furthest from outcome and often difficult to relate the influence of structure to quality of outcomes of services. Vuori, (1989),

suggests that the longer the chain of assumptions, the greater the chances of weak, logically untenable and unproved links. In addition, good structure could be ineffectively used resulting in bad outcome, that is failure to meet objectives. For example highly skilled health personnel coupled with all necessary requirements that provide poor patient care and thus unhappy customer. On the other hand inadequate inputs could be effectively utilised to produce good results. However, albeit good structure does not always guarantee good outcomes, it may however preclude deterioration of quality, while establishment of standards would enhance provision and utilisation of resources to meet such standards since accreditation and mobilisation of future resources may depend on it.

Similarly, Donabedian, (1980), argues that structural approach is often the only option left where the other two approaches have failed and even in situations where little information or incomplete data are available for process and outcome measures. Monitoring activities are considered part of structure, thus early specifications of programme design, routine checks to ensure adherence to them is an important way of assessing the willingness of an organisation to encourage or discourage good performance. Structure provides an indication of the potential capacity to perform well or badly.

The relevance and contribution of the structure approach has been some how trivialised due to its application mostly in clinical situations. In other aspects of the health system, the information subsystem for example, there is clearly a direct relationship between the recording of data and the availability of recording instruments and skills of data collectors, in the analysis of data and the capacity to do so. it plays important role in certain contexts and does affect the quality of the process of health care. While categorisation of certain activities into structure, process or outcome is easy, it is however sometimes problematic to delineate boundaries between structure and process in certain situations. For example the

decision to collect certain data might be considered part of process by the health facility manager and as part of structure by the central office responsible for long term planning.

The process approach is often regarded as essential, established criteria help health care providers have better appreciation of their work and perhaps enhance provision of health care services. A general belief is that poor outcomes cannot be improved without assessment of structure and unavoidably the process of care, but even with good outcome measures, corrective actions are dependent on the process approach. However, it is sometimes difficult to relate process to outcome. For example, retrospective assessment of health care based on medical records may not give true picture of what happened to patients, information on every thing that occurred may not recorded. Furthermore, recorded information could be given different interpretation by different people. Prospective assessment can be subjective and contentious. Can valid assessment and comparison be carried out between groups of rural health workers in different geographical regions, with varying training backgrounds, albeit having similar responsibilities? Who determines criteria for assessment, to what extent can interpretation of criteria have universal meaning and application? The application of process is however limited to those circumstances where adequate structure is available.

The outcome approach regarded often as the most valid measure of quality of care, on the assumption that the purpose of health care is to cure, restore, maintain health and prevent disease, quality ought to be measured in relation to the attainment of these objectives. Although in principle outcome may be the most practical means of assessing quality of services, it has proved difficult in practice, for example to define the effect of other extraneous variables on the outcome of care, may develop at a much later period from when services were received. Nevertheless, outcome is regarded as the best way of comparing health care

across service providers and practitioners and for assessing efficiency in health care. That means given the right structure, is the right process adopted and would its utilisation lead to attainment of desired goals.

However, bad outcome, for example iatrogenesis after a surgical procedure, does not provide means of improvement, it aids in identifying existing and potential problems, improvement lies in the structure and the process methods. Again application of outcome measurement is sometimes problematic in the sense that it is not always easy to relate good outcome to good structure or process, particularly in clinical care. However, studies in non clinical settings have shown for example that the existence of quality information does not necessarily guarantee effective decision making and the effective use of available information.

3.6.2: Application of TQM in Health Care

In health care organisations many approaches have been applied in the identification and solution of problems in the delivery process. However (Bittle, 1991), argues that most of these approaches have proved ineffective, since finding and fixing in certain situations tend to create more problems but prevention of such problems is more cost effective and efficient. One way of preventing unanticipated events from occurring is by monitoring conformance to established guidelines. Gummesson, (1990), suggests that TQM in service organisations such as health must address both process and outcome quality, since health care consumers for example are involved in the process during service provision and outcomes are not always immediately observable, it is imperative to define strategies for both process and outcome when applying TQM in social organisations.

Key elements in the implementation of total quality is the integration of participating management and quantitative methods (Keyser, 1990). For quality to pervade the organisation, every worker must be involved, be aware of what is expected and how to get there. Tackling quality problems in health care organisations transcends its restructuring, but requires change in general management style, strong and committed leadership, with the capacity to take responsibility for general quality in the organisation, motivate and devolve decision making to employees at each level and make them responsible for the quality of their work.

A quality manager increases individual effectiveness through good and effective communication, proper coaching and counselling of employees, efforts are directed toward building problem solving teams that are committed to quality, effect changes that promote productivity and improve quality on a continuos basis. TQM has the capacity to address quality issues at unit, departmental and organisational levels as well as address issues of motivation and organisational integration. To be effective, everyone in the organisation must be involved, requires a system that puts emphasis on co-operation instead of competition, which characterises most health care organisations.

Donabedian's quality assessment models and TQM are the two main approaches, others seem to be derived by merging attributes from these approaches. For example, John Ovretveit (1992), by combining elements of Donabedian's structure, process and outcome models and those of TQM presented another dimension to quality assessment, discussed in his book titled Health Service Quality: An Introduction to Quality Methods for Health Services. Three areas for quality assessment, client quality, professional quality and management were identified.

Client quality is predicated on how clients perceive service, which depends on conscious expectation and unconscious assumption. Ovretveit argues that client quality is a global and enduring attitude towards service, derived from repeated satisfaction overtime rather than impression developed from a recent experience. He went on to present ways of preventing poor client quality; improving client quality measuring client quality. **Professional quality** refers to two related components identified by Donabedian, outcome and process quality. Outcome quality is measured on the basis of whether service meets professionally assessed needs of clients. Process quality is based on the selection and implementation of services with appropriate procedures which professionals believe meet clients' needs.

Professional quality therefore entails staff possessing knowledge and skills to meet needs of client, availability of professional policies and procedures; adequate supervision and training. Medical or unprofessional audits are proffered as approaches for assessment. **Management quality** entails selection and deployment of resources in the most efficient way to meet customer needs within limits and directives. Improving management quality means enabling staff to continually eliminate causes of mistakes, duplication and waste. It is about ensuring that the right things are done first time and every time, principles derived from TQM.

The end result is to ensure quality in services and leadership in the health care organisations. Berwick, et. al. (1992), argue that modern health care is complex and utilises a wide range of professionals and para-professionals, who utilise varying technologies, information, rules and procedures to provide health care. Undoubtedly, improvement in the health sector depends on effective and efficient process of care and the management of the complex elements involved. Total quality management is expected to enhance the attainment of these objectives.

3.7: SUMMARY

Clearly, the quest for quality is part of human nature but establishment of formal approaches to ensure quality in manufactured products predates the World Wars but gained impetus with the wars. However quality in the service sector came in rather belatedly. The relationship between producers and customers is a fundamental source of difference between industry and health care organisations, in manufacturing, customer is remote while the customer meets face to face with producer in health services. Products of the health system are less tangible and different from concrete items produced by industry, which renders measurement of quality in health organisations rather difficult.

Quality assessment in health care gained prominence recently, development of quality assessment measures understandably has focused on patient care. Yet, effective assessment of health services quality to a greater extent depends on quality of available information, a quality assessment without quality information, is not a quality assessment. Quality in health care information system is therefore a desideratum. Indeed, Donabedian (1990), points out that all quality assessment activities depend on the availability of accurate and suitable information, quality assessment cannot be conducted with inaccurate and unreliable information. In the same vein proper clinical decisions, management decisions, community health need assessment all depend on the availability of accurate and reliable information. Implicitly, if the information system was faulty or does not provide the right quantity or quality information, subsequent activities would be faulty.

Different approaches for measuring information systems quality are suggested with no agreed method. One school of thought suggests the measurement of systems and software development quality, the structure of the information system. Others suggest the use of dual dimensions of quality, user satisfaction and waste.

User satisfaction would be determined by responses to questions regarding satisfaction in the use of the system. Waste on the other hand is the proportion of annual expenditure on system development and acquisition estimated to be ineffective.(CSC, 1992). This is an important area in which management needs help and in which progress has been meagre, arguments and exploration of approaches must continue. (Eilon, 1993).

The structure, process and outcome models have been applied in varying, albeit clinical settings, in the health system. No approach has been found suitable to all circumstances, methods are continuously being modified to suit varying contexts. As Rosenberg, (1990), suggests the field of quality assessment in health system is young and the choice of appropriate methods for specific circumstance calls for creative innovation. In the next chapter, methodological issues concerning data collection in the context of the present study and studies in developing countries are examined.

CHAPTER 4

RESEARCHING IN DEVELOPING COUNTRIES

4.1: Introduction

The significance of quality information in management, decision making and health services quality assessment is beginning to gain attention in health care organisations, mostly in health settings of developed countries, as yet often related to patient care services. There is dearth of research work that assessed health information systems quality, a situation more pronounced in developing country. This study set out to assess quality of the primary health care management information system in Nigeria, where health care quality assessment has only began to be topical among. With limited experience and dearth of models to learn from, a major decision was in choosing the most appropriate data collection tool with the capacity of providing in-depth data required in this study, the choice was between quantitative, qualitative or the combination of both.

In research, methods applied and scope of the study depend on problem at hand and amount of existing knowledge. More specifically, Hammersley et. al.,(1983), argue that methods must be selected according to purpose in health research. Health care issues, suggest Daly, et. al., (1992), should be identified from problems encountered in clinical practice or community concern, these in turn determine questions to be answered. Furthermore, it is believed that the broad range of questions that arise from complex health care problems can best be tackled utilising a broad range of study methods. Those involved in health research are encouraged to develop methodological flexibility both in design and data collection. This chapter is concerned with methodological issues surrounding the study.

4.2: The Choice: Quantitative or Qualitative Method

4.2.1: Quantitative Approach

Quantitative research is founded on positivism, as a theoretical concept, it has been valued, given varying interpretations and thus accorded numerous attributes. Positivism has had remarkable influence on social science research by promoting the status of experimental, survey research and quantitative analysis. Research approach that is founded on a philosophical orientation that advocates application of scientific method to all forms of knowledge. Major characteristics are, the principle of methodological naturalism, a belief that methods and procedures of the natural sciences are appropriate for the social sciences (Giedymin, 1975).

This implies objects of social sciences, that is people who think, have feelings and differ from each other in terms of beliefs and personal attributes are the same as objects of natural sciences. Therefore, in social science as in the natural sciences only those phenomena observable by the senses can be considered knowledge. Based on this, scientific theories are thus a compendium of empirically established facts on inductive process and hypotheses. However, some have argued that positivism does not adequately describe the nature of natural sciences. For example Halfpenny, (1982), argues that the whole of scientific activity cannot be characterised by those features one philosophy of science identifies as central. Bryman,(1992), explicates that science undoubtedly operated on the tenets of positivism and quantitative researchers have sought to conform to methods and procedures of the natural sciences. However, positivism used today in a variety of confusing ways such that it has sometimes become a term of abuse among social scientists Hammersley,et. al.(1992); Bryman, (1992). I

Quantitative social research is therefore an approach that uses language found in natural sciences such as variables, control, measurement and

experiment. This superficial imagery, as Bryman, (1992), argues reflects why quantitative research is underpinned by a natural science model, consequently the logic and procedures of the natural sciences are taken to provide epistemological yardstick against which empirical research in social sciences must be appraised before it can be treated as valid knowledge.

Quantitative methods is characterised as hard, wet, fixed, abstract, explanatory, objective, deductive, scientific, hypothesis testing, value free, rigorous, atomistic, nomothetic, positivistic, theory based, empiricist, and universalistic. It is conceptualised as methodical framework in which research problems are theory based and hypothesis derived from general theory. Various approaches are employed for data collection. For example, social survey has the capacity of gathering quantifiable data on large numbers of people, representative of a wider population for theory and hypothesis testing.

Backstrom, et.al.,(1963), define quantitative approach as gathering of information about a large number of people by interviewing a few of them. Similarly, a survey may serve the function of exploration, description and experimentation, using one or more of the data collection alternatives, such as interview, administration of questionnaire and observation. In contrast experimental approach involves a series of strategies to assess effects of variables on people under highly controlled conditions (Black, et. al., 1976). The approach, conditions within which people are observed and analysed are controlled, ranging from simple to complex designs. There are questions on the high degree of flirtation by social sciences, mimicking natural sciences which has motivated proponents of qualitative research to present alternative strategy for examining social reality.

4.2.2: Qualitative Approach

Is consistent with investigation of social reality, its fundamental principles include commitment to viewing events, action, norms, values from the perspective of people being studied. It provides detailed descriptions of social settings investigated, with preference for contextualism; tends to view social life as a dynamic rather than static process; adopts open and unstructured research strategy; and favours formulation and testing of theories, concepts to proceed along with data collection.

Social scientists, particularly ethnographers developed an alternative view of the proper nature of social research that is imbedded in the naturalistic theory, the qualitative approach (Guba, 1978; Dezin, 1971). The main paradigms providing qualitative research with distinct epistemology are phenomenology, versthen, symbolic interaction and others. From this range of sociological and philosophical ideas naturalistic approach draws its strength, emerging as an alternative view of the proper nature of social research.

Phenomenology, albeit a wide field of study but relative to qualitative research is credited to the works of Husserl,(1927), who in the early twentieth century, proposed a programme to study the universal structures of people's apprehension of the world. He argued that natural attitude is significant in the way our subjective experience of the world is filtered, through an unquestioning acceptance of its form and content. An observer must capture these, prior understandings in order to appreciate subjective experience in its pure, uncontaminated form. This capturing of immediate comprehensive world is referred to as phenomenological reduction.

Phenomenology had little influence on social sciences until after the Second World War with the writings of Schutz.(1962), who interpreted most of Husserl's works. Schutz posits the world of nature as explored by natural scientist has no meaning to molecules, atoms and electrons, however the observational field of

the social scientist imbedded in social reality has a specific meaning and relevant structure for the beings living, acting and thinking within it. Therefore the thought object constructed by social scientists, in order to grasp this social reality, have to be founded upon that constructed by common sense thinking of men, living their daily lives within the social world. Essentially, a phenomenologist views behaviour as emanating from ones interpretation of the world and this process of interpretation must be captured, to grasp the meanings of a person's behaviour, the phenomenologist attempts to see things from that person's perspective. **Symbolic interactionism** overlaps with phenomenology, in which social life is viewed as an unfolding process, individual interprets the environment and acts on the basis of that interpretation. Thomas,(1931), argues that before the individual acts, there is always a stage of examination and deliberation which forms the direction to act. Symbolic interactionism rests on three fundamental premises, explicated by Blumer, (1969), a student of G.H. Mead, regarded as the most influential of early symbolic interactionists. According to Blumer, human beings act on the basis of meanings things have for them. Secondly, meaning of such things is derived from the social interaction that one has with ones fellows and finally, these meanings are handled in, and modified through an interpretative process used by the person in dealing with the things encountered. This model emphasises the need for a researcher to catch the process of interpretation through which people construct their actions. Emphasis on the need to focus on the meanings and interpretations given by actors has been regarded to imply a need for participant observation.

Similarly, **verstehen** an idea put forth by Max Weber in the early twentieth century, meaning to understand, is often regarded as one of the intellectual precursors of qualitative research approach. Weber in his early work placed great importance on understanding as a concept and what sociology was all about. Leading to his definition of sociology as a science which attempts the

interpretative understanding of social action in order to arrive at a causal explanation of its cause and effect (Weber, 1947). Two forms of understanding are recognised by Weber, direct observational understanding of the subjective meaning of a given act and the explanatory understanding in which an act has been placed in an understandable sequence of action, the understanding of which can be treated as an explanation of the actual course of behaviour.

Qualitative Data Collection Methods

In qualitative research major approach to data collection is observation, which captures the natural social context in which people's behaviour occurs. Even from a broader context of scientific study, it is the classic method of scientific study says (Peil, 1982). Scientists in various disciplines for example set up experiments and systematically observe the outcome.

Anthropologists on the other hand live in communities in order to observe and gain first hand information of the world and behaviour of the people, incorporate observing, listening and talking to people in their natural social environment. This involves sustained immersion of the researcher among those under study in order to generate a rounded in-depth account of the group or organisation. Observation tends to provide a more vivid description of social life than is generally obtainable by other methods. However, this effort to present reality as it was observed makes translation of findings into scientific text a difficult task but other means of data collection can be employed to improve quality of overall research finding.(Wiseman, 1970). Resis, (1971), distinguishes systematic from unsystematic observation. The systematic approach involves observation and recording done according to explicit procedures, which allows for replication. Social science classifies systematic observation into two main categories, participant and non participant observation. **Participant observation** implies investigator becomes part of the natural setting in which observation is conducted, an approach often adopted by anthropologists in ethnographic work.

In non-participant observation, the researcher observes behaviour of others in a natural setting without participating in the behaviour under scrutiny. This approach has the proclivity of placing those being observed in awkward position which might cause their behaviour to loose its naturalness. However, expert opinion is that consciousness of the presence of a non participant observer tends to dissipate as time goes on and thus has little or no effect on the observed. Black, et. al. (1976), add there is no evidence that presence of non participant observer has detrimental effect on behaviour under study. Nevertheless, the most significant draw back is the lack of a well established, coherent, methodological protocol for its utilisation but has the advantage of allowing for planning in the choice of setting to be observed; permits examination and development of explanatory schemes or specific research questions for probing; and details related to recording data can be carefully planned and decided.

Advantages and Disadvantages of Quantitative and Qualitative

Naturalism as mentioned earlier, developed as an alternative view of proper nature of social research in reaction to positivism, whose dominance in social research is becoming rather contentious. Naturalism proposes that as much as possible the social world ought to be studied in its natural state, undisturbed by the researcher.

A philosophical view that strives to remain true to the nature of the phenomenon under study. Derived from the notion that people engage in activities that have meaning to them and create their own social realities. Therefore a view that conceives man as object and probes human behaviour without concern about its meaning, cannot be regarded as naturalist, such an approach has molested in advance the phenomenon to be studied (Matza, 1969). Similarly, Blumer, (1969), argued that methods for studying social life must be assessed in terms of whether they respect the nature of empirical world under study.

Essentially, distant from naturalism is application of artificial methods of research which provide distorted view of social reality. A corollary is need to reveal the social world in a way reconcilable with image of that world which its participants carry around them. As Adler, (1985), points out, naturalism is one of the intellectual undercurrents of qualitative research, proposing study of social phenomena by getting closer to subjects and not imposing technical paraphernalia of quantitative research on them. However, the capacity to look through the eyes of subjects highly advocated in qualitative research is not devoid of problem, often related to the issue of interpretation, which is in the heart of qualitative research. Interpretation of behaviour and findings in qualitative research has the disadvantage of being rather subjective, the researcher may have a different interpretation of social reality from that given by the observed.

Another grey area is the development of theoretical ideas, which in this context develops gradually during or after the data collection process rather than before. Theory thus develops through analytical induction, a term coined by Znaniecki in 1934 and grounded theory formulated by Glaser and Strauss in 1967, as means of generating theory embedded in data. However, many qualitative research work are case studies involving single settings, consequently the generalisation of findings is often questioned.

Webb, et.al.,(1966), suggest the application of more than one method, and argue that there is greater confidence in findings when derived from more than one method of investigation, requiring the use of more than one instrument of measurement referred to as triangulation of measurement. Mintzberg (1985) suggests that qualitative approach has advantage of providing in-depth data from a small manageable sample in contrast to quantitative approach which can be applied to a large sample, but data are often superficial and often used more or less to check out what we think we already know. However, the nature of qualitative methods make direct contact with subjects imperative, moreover

an organisation cannot be studied from a distance, to understand what goes on in organisations one must be there to learn what happens, how and perhaps why.

A questionnaire can not even begin to capture a fraction of what goes on in organisations. To study an organisation is to study people within it and how they interact or not interact, what they do or not do, how they do it etc., to accomplish this one must hence interact with people in the organisation. More importantly, qualitative research in its broad sense is indispensable to the study of those aspects of health care that depend on social interactions between individuals or groups. Implicitly, applicable to any part of the health system since social interaction is pervasive and inextricably intertwined. Daly,et.al.(1992), argue that qualitative approach contributes to important aspects of health care such as how patients and health care workers interpret their experience of health care; the significance it has for the way in which health care system functions; and the cultural, historical and political circumstances which influence the nature of health care and its delivery. Context in research is an issue for consideration in deciding to adopt a particular research approach.

4.3: Context in Research

The object of research is to understand the unknown from which some meaning would be derived. However, ability to attach meaning and to understand a phenomenon depend on our knowledge of the contexts in which that phenomenon occurs (Hinds, et. al, 1992). Similarly, Field, et.al.(1985), argue that meaning exists, when implicit knowledge is conveyed explicitly to others and to do this adequately, context must be addressed. Hammersley (1992), suggests the need to learn the culture of those we are studying, particularly in societies other than our own, since not only may we not know why people do

what they do, often we do not even know what they are doing. This assertion is relevant to developing countries, where western trained academics and scientists, may impose divergent perceptions, sometimes incompatible with conventional beliefs of groups in the same society. Mishler, (1979), posits that all human actions and experiences are context based and can only be understood within those contexts, a lack of context in research and practice is a major threat to the accurate interpretation and application of findings.

The meaning of context in qualitative research varies, for example context according to Miles, et. al,(1984), is the immediately relevant aspects of a situation, such as a person's physical location, the other people that are involved and the recent history of their involvement, plus the relevant aspects of the social situation in which a person functions. While Hutchinson, (1986), on the other hand sees context as the setting or environment where behaviour occurs. However, Hinds, et.al,(1992), present a more purposeful perception of the concept, which includes methodical and analytic interactions with a situation of event in order to discover meaning in totality and to understand the whole of that event or situation. For them prediction, explanation and understanding culminate from this application of context. Researchers intentional interaction with context increases the accuracy and completeness of interpretations, expands the explanatory value of findings, creates the conditions for understanding human life processes and permits meaning and understanding to be shared, a perspective shared by many ethnographers.

Theoretical models are relevant guides in scientific study, however, application of a model requires consideration of the context in which it is being applied. This is even of greater significance, when models developed and tested in industrial countries are being applied in a developing country, since situations in the two environments are at variance. Research in developing countries has to be addressed within its sociocultural, economic and political contexts. A factor relevant to the data collection method adopted as well as the

subjects and users of findings. Implicit and explicit circumstances such as resource constraints, inadequate technology, general attitudes to data and research, existing approaches to data collection, fear of the meaning given to data are some of the factors that deserve due consideration in the planning and designing of research and the data collection method adopted.

However, such diversity has not precluded establishment of standard research methods generally regarded as study designs. These are plans that specify how data should be collected and analysed.(Kirk, 1968, Sellitz, et. al, 1959). Research designs provide framework for systematically studying social questions; indicate boundaries of research activity; enable the investigator to focus on specifics; and allows the researcher to anticipate potential problems in the implementation of the study.

4.4: Applying the Qualitative Approach

The use of qualitative data collection tools is an awesome task, since every encounter yields a great deal of what could be considered valuable information, some frame of reference was hence vital from the outset. The structure, process and outcome models guided data collection and formed a basis for organisation of data, assisted in decision on subject of observation. The study would have be more overwhelming without this, as a lone researcher involved in doing several things at the same time, observing, interviewing and note taking, all had to be carried out simultaneously. The point made by Glaser et.al.(1967), on being open to what the study site had to offer, allowing a coherent framework to slowing evolve leading to grounded theory rather than imposing one from the outset, seems more theoretical than practical, particularly for someone not well skilled in qualitative approach. Even with available framework, a novice in the application of qualitative techniques could easily be inundated with mass volume of irrelevant data.

The use of qualitative approach could not only be daunting but also risky, in unstable socio-political environments, typified by developments in the political situation in Nigeria, during the course of this data collection for the study, which had the potential of adversely affecting data collection process. The study was conducted at a period when the country was going through a difficult political period, coupled with high cost of transportation or the lack of it, were major unanticipated contextual constraints that had to be addressed. For example prevailing circumstances made it difficult to contact government officials particularly, at the federal level in Lagos, were tension was most felt in relation to the July 1993 Presidential Elections. Adjustment had to be made in terms of number of people interviewed and period of their interview.

Observation, interview, review of records and questionnaire were applied in order to enhance quality of data collected. This perhaps depicts what (Webb, et.al 1966; Smith,1975; Denzin 1978), termed triangulation, the combination of methodologies on the same subject of investigation. Triangulation can show convergence or divergent in results emanating from the various methods applied. Where there is convergence, it builds confidence in study results, while with divergence, alternative and perhaps more complex explanations could develop. Jick (1985), points that organisational researchers can improve accuracy of their judgements by collecting different kinds of data on the same phenomena, which also serves to validate and test reliability depending on nature of triangulation used. Direct observation, formal and informal interview, collection and review of documents, supplemented by questionnaire, provided data for analysis.

Observation proved a valuable tool for understanding underlying activities of the PHC information system, providing concrete facts based on first hand observation on how the organisation functioned, regardless of outcome of interviews and administered questionnaire. Whyte (1982) defines observation as the purposeful selective looking at, counting of objects or phenomena. While

Peil (1982), opined that observation as a data collection tool is the classic method of scientific study. Observation becomes essential and may be the only feasible alternative when documents are not available.

Expert opinion is that observation has the capacity to capture natural social context in which behaviour occurs, helps to identify important events that impinge upon social relations of participants and depicts reality from the perspective of the observed. Its main forte is its ability to respect natural context of social behaviour and the capacity to present graphically social life of individuals, groups or organisations holistically unattainable with other methods. It is further suggested that during data collection, problem experienced by respondents to recall past events is ameliorated where observation is applied. However, the question of subjectivity is an inherent weakness that leads to combining observation with other other methods. Furthermore, Black, et.al.(1972), posit that complementing observation with other data gathering methods provides a certain degree of quality to an investigator's overall research findings. Observation proved an indispensable part of this study, especially since application of the structure, process and outcome models could not have been possible without the use of observation. As discussed in chapter three, structural quality assessment model is only possible through direct observation and on the site examination of facilities, equipment, staff, records, procedures and policies, thus the use of qualitative approach was imperative.

Similarly, the process approach could be retrospective or prospective. Retrospective quality assessment involves examination of records, while prospective assessment requires direct observation during the process of service provision. Consequently direct observation was required in this study in order to understand processes of data collection and management. Furthermore, the lack of established framework for assessing health services quality or quality of the information systems in Nigeria, necessitated use of data

collection tools that would provide a broad and in-depth understanding of the information system. However, as indicated earlier, it is rather difficult to collect data without interviewing participants even if it served only the purpose of clarification. In this study interview was extensively used, since data collection touched on PHC information systems of the three levels within the health care system. In view of prevailing circumstances interview was applied to generate data at the three levels but was the main appraoch for central level.

At the peripheral level data were collected from Bama Local Government, the main study site, from community leaders, health workers, PHC co-ordinators, supervisors and senior managers at related health departments. Non-participant observation complemented by interview and questionnaire were used to collect data on structure of the information system, processes of data collection, and management and utilisation of information. Structured questionnaire was administered to supervisors and managers to further clarify qualitative findings and to ascertain their perception of the information system.

Main sources of data at the state level were the Primary Health Care Department, Monitoring and Evaluation Unit, the State Ministry of Health, Epidemiologic Statistics Unit and the University of Maiduguri Teaching Hospital, Comprehensive Health Centre. At the state and federal levels however, observation, interview and review of existing documents were main sources of data. Obviously, **interview** was one of the main data collection tools utilised in this study, much more than was anticipated prior to commencement of fieldwork. It was rather difficult to observe without asking questions, perhaps the reason for this and my only possible explanation is that an organisation was being assessed and not the attitude of individuals. Hence, through the course of data collection, observation and interview either structured or unstructured tended to be utilised simultaneously.

Often, observed events had to be clarified by questioning, this I suppose helped to avert being trapped in the misinterpretation of situations, which could

have different meaning from that held by health workers. Dezin (1970), defines interview as any face to face conversational exchange were one person elicits information from another. It proved very useful in cases were verbal expression was required and very much complemented observational technique. Structured interview was utilised to obtain information from community leaders, health workers and senior health officials at local, state and federal levels. **Review of existing documents** provided information on studies carried out within the health system, published and unpublished; structure of the information system, its objectives and framework for implementation were derived from documents. Beyond this, existence or absence of certain essential documents provides insight into the value of information and its importance in a system.

Structured questionnaire had to be administered despite application of the three aforementioned data collection methods. Midway into data collection, the need for comparing information derived from observation and interview was recognised. There was this feeling that perhaps health workers and the co-ordinators were necessarily concerned with the output of the information system. For example there was ambiguity in there understanding of the need for data accuracy and what that would entail. It was equally difficult to discern exactly what there understanding of requirements for effective data collection and processing would entail. Questionnaire was used for better understanding of issues, surrounded with some degree of ambiguity. This ambiguity I should say was even compounded when responses given were incongruent to what was observed and stated during interviews. Questionnaire was administered to health managers and supervisors in Bama LGA. However, generalisability and validity of findings could still be questioned, since most data collection centred on one LGA in the country, this could be viewed as a weakness. What is wrong with the sample of one? asks Mintzberg (1985). A choice that depends on what

is to be studied and does not preclude a small sample which has often proved superior in qualitative research.

In this context, questions that might arise are: why was Bama LGA information system selected, is it representative of the rest of the country and can findings be generalised within the Nigeria health care system? I strongly believe that in the Nigerian context, there might be variations in the number of trained staff available, from one region of the country to another, but one LGA PHC information system is as good as another for the study undertaken. However, the choice of Bama was related to its being one of the LGAs with essential infrastructure for primary care and a fully established information system.

Furthermore, structure and objectives for the MIS and its planning were centrally executed, supervision of progress made are carried out by central level officials and resources are distributed to the LGAs based on established uniform standard. All LGAs are expected to organise the PHC MIS in accordance with established framework, guidelines and criteria provided by the NPHCDA. Similarly, all LGA PHC Departments in the country based on stipulated guidelines must have the following units established: water and sanitation, maternal/child health, disease control and expanded programme on immunisation, drug revolving fund scheme, Guinea worm control where applicable and monitoring and evaluation unit. Furthermore, Bama is the only LGA in Borno paired with a teaching hospital and a school of medicine. It is a typical system with all the essential infrastructure in place, in as much as this is true findings are generalisable.

On the other hand, Bama by Nigerian standard typifies an average rural community, strategically, located at the borders of Nigeria and Cameroon, with characteristic interborder interactions and tensions. The intention was not to select the best or the worst area but rather one that provides varying dimensions of the nature of events in the country in view of prevailing

constraints. If the political climate had been favourable, financial resource and time available, selection of four LGAs from the four primary health care zones, providing a broader comparative picture, would have been useful. The study was carried out at a period of severe political uncertainty and mobility highly restricted, there was time and other resource constraints, it was therefore most expedient, cost effective and safest to carry out the study in Bama LGA, located 75 kilometres from the University Maiduguri my place of residence.

Equally, in quality assessment exercise, it is important to build in an intervention component. Intervention requires time for planning and implementation, it would require time to plan and implement intervention, observe concomitant changes and reassessment of the situation. Resources had to be mobilised. Furthermore, any intervention would require approval and input from the various administrative offices, and perhaps their involvement. Any quality intervention must take due consideration of resource requirement, it was neither practical nor feasible.

Preparation for the Study

Clearance was obtained was obtained from the University of Maiduguri, the State Director for Primary Health Care and the State Security Service, prior to commencement of data collection. Approval for the study was subsequently, obtained during a preliminary visit to Bama Local Government from the Local Government Chairman, the Zonal PHC Co-ordinator and Bama PHC Co-ordinator. In addition, it provided an opportunity to meet with the PHC Co-ordinator and five of the six Assistant Co-ordinators. At this initial meeting fears that workers had regarded the research was dissipated, by explicating purpose of the research, data collection procedures and their roles. In view of their anxiety, a non threatening and less probing approach was adopted at the outset, to facilitate building of confidence and trust. Through openeness during

discussions, tension mellowed down as research progressed and there was a more natural attitude to my presence, since it posed no threat to activities of workers. On the other hand, unit co-ordinators in particular began to have increasing awareness of certain difficiencies in the operations of the system. This contributed to the need for administering the the questionnaire, since validity of some responses became rather dubious.

At the same time some participants were eager to discuss sensitive issues, albeit in confidence, on perhaps my capacity to influence decisions at upper levels would later be to their advantage. This in my opinion, one of the disadvantages of qualitative data collection approach, particularly in ones own environment. Nevertheless, it is much easier to appreciation the dynamics and to detect different games played in ones environment. By the token, familiarity could be an impediment and obviate sensitivity to certain events. Consequently, ensuring accuracy and reliability of data was of utmost importance, which necessitated utilisation of various data collection methods.

Clearly, presupposition contributed to some actions taken in the course of the research, this could possibly, lead to the imposition of value judgement and presentation of unreliable conclusions, due to this subject characteristic of qualitative methods. Perhaps acknowledging the potential for this occurring from the outset might help to allay some of fears that may arise. Again counter the employment of various data gathering methods were utilised to some of such biases that might emanate.

4.5: Dilemma in Recording and Analysing Data

Awareness that so much had to be observed, so many people listened to, yet important information must not be missed, was major dilemma in deciding the best approach for record field data. Miles (1985), suggests that methods of analysis for qualitative data is not well formulated. Experience from this study

shows it is demanding and labourous in terms of data collection, transcription and analysis.

Initially, taking short notes and tape recording interviews, with transcription at the end of each day, was thought to be the most practical approach. However, after due consideration, writing copious amounts of all sorts of notes which were later transformed and expatiated into more meaningful form at the end of each day, became the common and practical approach to data collection. Tape recording was abandoned, it was suggested that civil servants were tape recorder shy, and its use would yeild superficial responses. A point of view supported by a former student of mine who worked with the PHC department.

After preliminary introductory meetings with local government officials, who facilitated the research and were contacted periodically, most work were with the PHC Department. Substantive work started with a meeting prearranged during my familiarisation visit with the PHC Co-ordinator. Two officers were appionted by the Co-ordinator to assist, they ensured that facilities were always provided, I was thus able to focus on my work. After this initial meeting, henceforth I reported at the beginning of each working day to the PHC Co-ordinator, to pay my respect as did every senior worker. At which time important developments and requests were also discussed, subsequently, at the end of the week the co-ordinator and me would meet to review the weeks events and my plans for the coming week.

These frequent reports and consultations placed him in a seemingly empowering position required to gain his confidence. He became more relaxed, felt in control, not threatened and was often ready to discuss matters with me. I strongly believe that openness and honesty is essential in field research. To establish a healthy rapport takes a lot of work but is a sure way to gaining people's confidence and their willingness to assist.

I worked with each of the six units responsible for the various PHC activities: the water and sanitation unit, Expanded Programme on Immunization and Disease Control, Maternal /Child Health and Family Planning, Essential Drugs Unit, Guinea Worm Eradication and the Monitoring and Evaluation Unit. Data collection started with the water and sanitation unit, initial interview was with the unit co-ordinator, he had been on study leave but was available for two weeks due to closure of the university. The choice of subsequent unit to work with depended on which unit co-ordinator was available, a decision usually taken a week before work commenced with that unit. This arrangement did not preclude interaction with, hold meetings or undertaken field visits with members of another units, whenever transportation was available.

However, division into the various units proved useful in data organisation and analysis. From the outset every data and jotted notes derived from each unit was filed separately, updating was equally facilitated. All the unit co-ordinators were asked similar specific questions related to resources, training of staff, skills, number of staff, involvement in data collection, processing and use. Discussions were often not restricted to specific identified issues. Sequencing, wording of questions and commencement of interviews were not highly structured, a great deal of flexibility was allowed.

For example, before commencing with scheduled interview with a unit, who took an interest in teaching me the local language, we spent approximately ten minutes to review words she wanted me to learn, before proceeding with the interview. Her enthusiasm was obviously sustained through the duration of our meeting, which surprisingly culminated in a visit to another related ministry to confirm some of her information. Findings at the related ministry was a water shed in understanding the level of inter organisational conflict and rivalry that existed. Miles (1985), posits that qualitative research leads to production of serendipitous findings and the adumbration of unforeseen theoretical leap; reduce the researcher's incapacity, bias, narrowness and arrogance. Flexibility,

openness and some level of humility allow things to evolve which are often satisfying to the researcher and the researched.

At the end of data collection a meeting was held with the PHC Co-ordinator, major findings were discussed for clarification and culminated in agreeing a workshop for health workers on the management information system. The workshop was useful in imparting knowledge about the health information system, the process of data collection and analysis, importance of using information derived at each level. It also provided a forum for discussion clarification of research findings. For example, the lack of adequate training was agreed by to have adversely effected the information system. These measures were employed to cross validate findings and to complement the multiple approaches used for data collection and perhaps save me from being trapped in my own delusion and subjective interpretation of conclusions.

Then there was the awesome task of organising and analysing data in a supposedly scientific manner. A major problem was deciding what data should be used and what could be put aside. There was vast volume of notes with no clear method of analysis, transcription and organisation of notes for structured analysis proved rather daunting. Initial structure adopted by collecting and organising data on each unit on the structure, process and outcome of activities about the information system provided a good best guide and was the format adopted for analysis. In chapter five, general background on the Nigeria health care system, primary health care and the information system is presented.

CHAPTER 5

THE NATIONAL HEALTH CARE SYSTEM AND PRIMARY CARE

5.1: Introduction

The purpose of this study was to examine quality of primary health care management information system in Nigeria, with Bama Local government as a case study. Government documents and archives provided valuable historical information needed to better understand evolution and growth of the Nigerian health care system. Background to development of the current health care system, place of primary health care within its framework, health situation in Nigeria, structures for effecting health policies and the national information systems are examined in this chapter.

5.2: Background to the Nigerian Health Care System

In the first half of the nineteenth century, no medical service for Nigeria existed until the Niger expedition when medical care of a simple nature was introduced in some parts of the country. The Sacred Heart Hospital, Abeokuta was the first, established in 1895, with 170 beds, for the Royal English Army. Later 1898, it was succeeded by a government hospital in calabar, through this period and during the World Wars, hospitals proliferated (Dike, 1960).

The Nigeria health care system has undergone many changes over the past three decades. The most recent with far reaching implications was adoption of the Primary Health Care (PHC), approach. The need for preventive measures was recognised during early development of health services in Nigeria, for example, Dr. Africanus Beale Horton, the First Nigerian doctor campaigned against slum conditions and poor hygiene in African cities, which led to publication in 1867 of the Physical and Medical Climate and Meteorology of the

West Coast of Africa and in 1868 A Treatise on Guinea Worm (Schram, 1971).

However, emphasis was more on establishment of secondary services, number of hospitals increased from two hospitals, with 21 beds in 1898 to 306 hospitals with 20,000 beds in 1960. In 1946, the colonial administration attempted at planning ahead, with the Ten Years Welfare Plan(1946 -1956), covering all aspects of governmental activities in the country, albeit unsuccessful gave impetus for subsequent plans. It was however, in the 1980s that emphasises on preventive care gained momentum. National health initiatives were underscored by other structural changes in national policy and management structures, as well as the Global advocacy for Health for All through the Primary Health Care approach.

Organisation of the Health Care System

The national health system operates on the basis of shared responsibilities between the three levels of government, the Federal, State and Local, with each tier responsible for a level of health care, tertiary level of care for federal government, secondary for state and primary for local government.

Federal, at this level, the Federal Ministry of Health (FMOH), now the Federal Ministry of Health and Social Services(FMHSS), is responsible for policy development, planning, supervision, monitoring and evaluation of national health programmes. University teaching hospitals often attached to medical schools and specialist hospitals provide highly specialised tertiary services. However, the National Primary Health Care Development Agency, established in 1991 now has responsibility for policy development, planning, research and effective implementation of the primary health care system in Nigeria.

State ministries of health under the State Government have the onus for effective implementation of secondary health care services. In addition they provide technical assistance, logistics support to the Local Government Health

Departments. Acute and specialised services, health education as well as rehabilitative care are provided by general and specialist hospitals. Secondary health facilities are referral units for the primary health level.

The Local Government Area (LGA), being the level of government closest to greater majority of the population is responsible for administering primary health services. The primary level is first point of contact and entry into the health system. Rudimentary preventive, curative, promotive and rehabilitative services are provided. Traditional health practitioners that are commonly found in rural communities coupled with orthodox private practitioners, provide complementary services. The Department of Primary Health Care under the Local Government Council is responsible for implementation and management of primary health services (FMOH, 1988).

5.3: Development of Primary Health Care (PHC)

It was after independence in 1960, that development of framework for a structured health care system, that would ensure equitable distribution of health services and resources, as well as address prevailing health needs of the population was attempted. Serious deficiencies in the delivery of health services were identified, only 30% of the population was covered with health services, the poor and rural communities were neglected; there was disproportionate high investment in curative services to the detriment of preventive care; poor management and inefficient use of resources, resulted in failure to meet objectives; community involvement was abysmal; infrastructures were defective; the health system was poorly financed; and basic health statistics was lacking.(Ransome - Kuti, 1991). Initial health planning attempt to address these problems, was with the First National Development Plan, interrupted by the 1967 to 1970 Civil War. Therefore, beginning with the Second National

Development Plan (1970-74), emphasis was on reconstruction of health facilities, training of doctors and other health personnel, control of communicable diseases, development of research facilities and activities, drug quality control and manufacturing.

The Third Plan (1975- 1980), focused on implementation of the Basic Health Scheme, geared toward preventive health care, community participation, training and utilisation of auxiliary health workers and construction of primary health care facilities in rural areas. In the Fourth Plan (1981- 85), establishment of a three tier comprehensive and integrated health system comprising three levels primary, secondary and tertiary, was addressed.

Transfer of primary health care to the Local Government Areas, gained momentum. Greater attention was given to unerprivileged and high risk groups; effective management and efficient use of resources, increased inter ministerial co-operation and community support; reduction in capital development; increased cost recovery activities, health sector research; and improvement of the health information system, were the focus in the Fifth Development Plan (1986 - 1991).

Implementation of national health plans was heralded by the adoption of the Primary Health care approach and the First National Health Policy in 1986. The National Health Policy is predicated on the national philosophy of social justice and equity. The five national objectives include establishment of a free and democratic society; a just and egalitarian society; unity, strength and self reliance, a dynamic and progressive economy that is full of opportunities for all citizens.(FMOH, 1988).

Within the framework of national goals and philosophy, health and economic development are inextricable and thus influence each other. In this context, health development is essential component of social and economic development, a means for ensuring social justice and national security. Primary

health care is considered a means of attaining health and national development objectives.

Main goal of the national health policy is providing a level of health care that enables all Nigerians achieve socially and economically productive lives, through a national health system based on primary health care. The 1978 Alma Ata definition of primary health care was adopted and defined within the national health policy as essential care predicated on practical, scientific, socially acceptable methods and technology, made accessible to the people wherever they may live, with their input and forms an integral part, and first point of entry into a continuing health care system.

Health is on the concurrent list of responsibilities based on the 1979 constitution. The 1988 Civil Service reforms was an impetus for reorganisation of the Federal Ministry, providing a structure for accommodating primary health care. Reforms mandated professionalisation of all ministries, for effectiveness, efficiency and higher productivity.

Within the reforms, each ministry was allowed at least eight functional department with three mandatory department, personnel and management, finance and supplies, planning, research and statistics. In addition, the Ministry of Health created five professional departments: disease control, primary health care, hospital services and training, food and drugs administration and population activities.

This resulted in the creation of primary health care department by merging the divisions and units handling the eight components of primary health care. Under primary health care three divisions were created, primary health care services, health manpower development, management, monitoring and evaluation.

Local Government and Primary Health Care

Constitutionally the LGAS are responsible for determining most effective ways of providing basic health services; identify priority health programmes and determine activities to be carried out by individuals, families, communities, health institution and other sectors; provide relevant information to people in all facet of primary health care; mobilise resources to support health programmes and develop means of harnessing contribution of communities in decision making and implementation of programmes; ensure that facilities are provided and maintained; collect process and utilise relevant data about health resource, health status of the community, health behaviour and trends. Each LGA has a council and a chairman, elected or appointed. The structure of the LGA council allows for the department of administration, finance, works, education, health and social welfare. The chairman appoints four supervisory councillors to the portfolio of education, agriculture, works and health.

The Federal Ministry of Health stipulates establishment of primary health care, with the PHC Co-ordinator as Head of Department and responsible for all the health programmes of the LGA. A common administration and budget is advocated, with the PHC department structured to have assistant PHC co-ordinators responsible for planning, monitoring and evaluation; immunisation, disease control, water and sanitation; Maternal/child care, family planning and nutrition; operations of the Drug Revolving Fund Scheme; and health education and women's programme.

Prior to promulgation of the National Health Policy, states owned and operated PHC facilities in LGAs. In 1990 state governments commenced devolution of all PHC facilities, personnel and management to the LGAs, a process completed in 1991. Similarly, at national level, the National Primary Health Care development Agency (NPHCDA), was established in 1991, responsible for overall planning and implementation of primary health care.

5.4: National Primary Health Care Development Agency

In 1991 (NPHCDA),was created to plan manage and implement primary health care programmes for the nation. Promotion and sustenance of PHC regardless of prevailing political changes instigated its creation. It is headed by an Executive Director, who is responsible to the Minister for Health. Activities of the NPHCDA are guided by national health policies and objectives.

There are three main functional units -department of administration and finance, operations and that of planning research and statistics. The Department of Administration and Finance is responsible for the day to day running of the Agency. The main functions of the Department of Planning Research and Statistics include policy development, planning, research, monitoring, evaluation and dissemination of information.

The Operations Department on the other hand is responsible for activities related to community development, advocacy, social mobilisation, training and continuing education of health workers. Additionally, it supervises and provides technical support to the States and LGAS Zonal Offices. It monitors, evaluates PHC activities and disseminates information to other organisations, relevant departments of the federal ministry of health.(NPHCDA, 1992).

To facilitate administration and management of primary care programmes, the country is divided into four PHC zones (A, B, C, D), with Zonal Headquarters in Enugu, Ibadan, Kaduna and Bauchi. Zonal Offices provide technical support to states and local governments within their given zone. Zonal Co-ordinators are staff of the NPHCDA, thus responsible to the Executive Director. State ministries of health in collaboration with zonal offices but not responsible to them, plan for and ensure effective implementation of primary health care programmes. However, practicalisation of PHC plans and programmes is the responsibility of PHC Departments in the LGAs, supported by local leaders and community members.

5.5: Health Situation in Nigeria

There is an estimated 85 million people in Nigeria, 75 to 80% of which live in rural areas. Crude birth rate is 50 per 1000 population, crude death rate is 16 per 1000, child mortality is 144 per 1000 children, infant mortality is 85 per 1000 live births, this may be as high as 100-160 per 1000 in rural areas, maternal mortality 16 per 1000, life expectancy at birth is 53 (FMOH,1988). Tables 5.6 to 5.8 provide details of the health situation over the years. It is obvious that substantial improvement in health has not been achieved despite all the efforts through primary health care.

Compared the above indicators with recent World bank reports with Crude death rate 14 per 1000 population, crude birth rate of 43 per 1000 population; infant mortality of 84 per 1000 live births, has remained the same; under five mortality is still extremely high, 192 per 1000 children for males and 174 for females; life expectancy is still at 52 at birth.(World Bank, 1994). Similarly, the National demographic Survey Report seem to indicate little improvement in child survival in the 80s, with child mortality at 115 per 1000, exceeding infant mortality of 87 per 1000. It is estimated that 67% of the population has access to treatment and essential drugs within 1 hour or 5km of home. A remarkable improvement from hitherto 37% prior to implementation of primary health care. Most deaths among children and the poor are largely due to infectious communicable diseases. Disease patterns among the rich and the elite tend to be more chronic in nature.

Concerted efforts from national governments, individuals, institutions, and external organisations have been directed toward effective implementation of primary health care. All machinery necessary for effecting PHC are in place from the federal to local government level. PHC has received the highest political support, commitment and financial investment from federal government since the history of health services in Nigeria. Despite these efforts the health situation has not changed much, in some cases current situation is

reported to be worse. Effectiveness of PHC services therefore require assessment.

Table 5.1: Health Situation Reports

Health Indicator	FMOH 1988	World Development Report 1993	World Development Report 1994
Crude Death Rate	16 per 1000 population	14 per 1000 population	14 per 1000 population
Crude Birth Rate	50 per 1000 population	44 per 1000 population	43 per 1000 population
Infant Mortality Rate	85 per 1000 live births	85 per 1000 live births	84 per 1000 live births
Under Five Mortality	144 per 1000 children 1-4	F.-177 per 1000 children M.-192 per 1000 children	F. 174 per 1000 children M. 192 per 1000 children
Life Expectancy at Birth	50 years	F.-53 years M.-50 years	52 years

Sources: FMOH (1988), The National Health Policy and Strategy to Achieve Health for All Nigerians. Federal Ministry of Health, Lagos

World Bank (1993), World Development Report: Investing in Health, World Development Indicators. Oxford University Press.

World Bank (1994), World Development Report: Infrastructure for Development. Oxford University Press.

Table 5.2: Infant and Child Mortality Rates on Data from 1985 to 1989

	Neonatal Mortality	Post Neonatal Mortality	Infant Mortality	Child Mortality	Under Five Mortality
0 - 4	42.1	45.2	87.2	115.2	192.4
5 - 9	48.7	47.0	95.7	103.3	189.1
10 - 14	51.9	46.7	98.6	113.5	200.9

Source: Federal Republic of Nigeria (1992), National demographic Health Survey

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The simplicity of approaches advocated for PHC does not connote inferiority. it is imperative to assess the effect and impact of various PHC intervention programmes on communities, identify deficiencies, and constraints, in order to

institute appropriate corrective measures. The national health information system developed in accordance to the national health policy within the framework of PHC was meant to provide means for assessing all primary care programmes and services.

5.6: Resources for Health

5.6.1: Financing the Health System

Within framework of the National Health Policy, federal and state government are encouraged to consider allocation of health finance with priority accorded primary health care and emphasis on the under served areas and groups. In the distribution of finances, more attention are required in the areas of promotive and preventive services, with all possible ways of financing the system explored to meet health objectives. Sources of finance include general revenue, user charges for curative services, health insurance and community financing; subsidisation of preventive services; contribution from employers (FMOH, 1988).

The main national source of revenue is petroleum products. Although each level of government has the capacity for revenue generation, the Federal Government provides the bulk of money and is responsible for distributing finances to the State and LGAs. **Vertical allocation,** implies sharing of money among the three levels of government. The formula developed in 1990 indicates that 50% goes to federal, 30% to states, 15% to LGAs and 5% to special fund.

Revenue allocation to the LGAs has gradually increased over the years, 5% in 1985, 10% in 1987 and 15% in 1991. This increase is obviously in response to additional responsibilities of administering primary health care and primary

education. To facilitate operations, since 1989, local government vertical revenue is no longer disbursed through the state.

Horizontal allocation implies the sharing of funds among the various levels. Current formula is equality among states 40%, population 30%, social development factor 10%, revenue efforts 10% and land mass/terrain 10%. It was only in 1990 that health was included in the horizontal allocation. The Federal Ministry of Finance and Economic Development (FMFED), makes allocations on the basis of prepared budget. Allocation for the Federal Ministry of Health is based on submitted proposal on personnel expenditures and non personnel expenditures needed to support the various health facilities and programmes, such as the federal teaching hospitals, federal specialist hospitals and federal PHC programmes. Table 5.3 shows federal budgetary allocation to the FMOH from 1979 to 1989.

The total budgetary allocation to health has not exceeded 2.3% of the national budget, however, for effective implementation of PHC these are supplemented by huge extra budgetary allocations. Tables 5.4 and 5.5 show budgetary and extra budgetary allocations to PHC. Obviously, extra budgetary allocations are the main mechanism for implementing PHC in Nigeria. For example in 1989 19.90 million Naira was budgeted to PHC, while extra budgetary allocation was 56 million naira, 160% greater than the regular budgetary allocation. This is perhaps an indication of the political will and commitment towards sustenance of PHC in rural communities.

It is however difficult to discern how budgetary allocations are appropriated at all levels. There is no mechanism established to ensure that funds are equitably and responsibly utilised. On the other hand, curative care has continued to consume disproportionately large part of the health budget, 85.7% at federal level and ranges from 38% to 72% at local government. Furthermore, reports show a lack of mechanism for ascertaining pattern of expenditure since data from public sources are unreliable; information on expenditure are

aggregated with no breakdown on expenditure on tertiary, secondary or primary care (WHO, 1992).

Similarly, bilateral and multilateral organisations, voluntary agencies and non governmental organisations contribute immensely toward PHC implementation in Nigeria. What has however been lacking is the effective co-ordination of resources. There is still no mechanism for accounting and integrating financial contributions, to ensure efficient utilisation. For example UNICEF is concerned with problems of high infant, child, and maternal mortality; unreliable household food production and availability; malnutrition among children and women; low female functional education; children in special difficult circumstances; and early child care development and education. In 1990 UNICEF's contribution was estimated at 21.14 million US dollars, USAID 107 million dollars. Table 5.6 shows recent estimated contributions of the various agencies for PHC activities.

5.6.2: Health Manpower

Health manpower development guidelines are well articulated in the National Health Policy. However, practicalisation of policy has not been realised. Health manpower plans and strategies for the determination of the number of personnel required for various services are not explicit. Consequently, in the presence of huge health manpower some communities are abysmally covered due to maldistribution, under utilisation or inadequate utilisation. Ransome-Kuti,(1991), suggests that Nigeria has exceeded the WHO standard for the African region of 1/10,000 doctors per population, they are however maldistributed with most in urban and southern states. Similarly, there are five times more nurses than doctors who are equally maldistributed. As at December 1986 there were a total of 16,003 registered physicians and dentists,

50,946 registered nurses and 42,423 registered midwives, 22,000 community health extension workers. Based on this the doctor/ population ratio is estimated at over 1/10,000, while the nurse/midwife population ratio is at 1/2573 (FMOH, 1991).

Table 5.3: Budgetary Allocation to Health 1979 - 1989 (millions of Naira)

Year	Total National Budget	Allocation to Health	% of Total
1979	9,510.00	177.41	1.87
1980	11,722.52	266.93	2.00
1981	11,561.70	303.20	2.62
1982	9,877.03	341.72	3.46
1983	10,425.32	313.60	3.01
1984	7,450.17	190.38	2.56
1985	9,578.00	223.75	2.29
1986	12,219.46	360.22	2.95
1987	10,302.34	236.45	2.30
1988	24,367.27	443.11	1.82
1989	30,107.10	452.50	1.52

Source : Makanjuola, J.D. et. al. (1990), Priorities and Process for Health Research in Nigeria. Department of Planning Research and Statistics, Federal Ministry of Health, Lagos.

Table 5.4: Federal Budgetary Allocation for PHC 1987 - 1989 (millions of Naira)

Year	Total Budget	Allocation to PHC	% of Total
1987	236.45	14.30	6.05
1988	443.11	18.50	4.18
1989	452	19.90	4.39

Table 5.5: Extra Budgetary Allocation to the LGAs 1986 - 1991 (millions of Naira)

Year	Allocation
1986	100
1987	22
1988	22
1989	56
1990	60
1991	60

Table.5.6: Estimated External Assistance for PHC

Agency	Period	Amount
CIDA	1990	1.73
EEC	1985 - 1990	8.16
Ford Foundation	1990	1.06
Global 2000	1990	0.20
UNDP	1990	0.11
UNICEF	1990	21.14
UNFPA	1990	0.56
USAID	1987 - 1992	107.00
UNDP/WHO	1990 - 1992	3.00
WHO	1990	1.83
World Bank	1990	188.10

Source: WHO, (1992), Local Government Focused Acceleration of Primary Health Care: The Nigerian Experience. Report of a WHO Review. SHS/DHS/92.1. WHO, Geneva.

Strengthening Health Manpower for PHC.

With the adoption of PHC, training programmes for doctors, nurses, midwives were reviewed and modified. For example each of the 14 teaching hospitals/medical schools established department of community health for the training of doctors in community practice. Teaching hospitals, were provided with capital grants to build rural comprehensive health centres to facilitate the training of medical students. Each teaching hospital was paired with an LGA to enhance their activities in the community.

For training of community health aids, community health assistants and community health supervisors, 26 schools of health technology were established. Training of community health officers is carried out jointly by the university teaching hospitals and the schools of health technology. Training programme focuses on the eight component of primary health care, Maternal child Care/ family planning, immunisation, health education and community mobilisation, treatment of minor ailments, water and sanitation, nutrition and essential drugs.

As at 1990 32,000 PHC workers were trained. This number was not sufficient to adequately provide basic services for the vast rural communities and led to the training of village voluntary health workers (VHWs) and traditional birth attendants(TBAs). Their involvement promoted community participation in addition to providing needed rural health manpower.

Health manpower planning and development could also be viewed in global terms, toward the attainment of health for all by the 2000. In recognition of lack of accurate and up to date information to guide decision on development of human resource for health, the Fortieth World Health Assembly adopted a resolution (WHA40.14) in 1987 on the promotion of balanced health manpower development. The Director General was thus mandated to work with member states in strengthening their health manpower systems consistent with the health strategies for health for all(WHO, 1990).

The general notion is to equip health workers with the most rudimentary skills that would enable them provide rudimentary health services. A principle that however has the potential for undermining quality of primary health services. In communities where health manpower is in short supply, primary health workers are responsible for management and provision of care for which training was not provided. In such communities the chances of iatrogenesis are high, with potentially greater resource consumption, far much higher than hitherto proposed expenditure for primary health care.

However, since mechanisms for assessing outcome of PHC interventions are not in place in many developing countries, cost /benefit analysis of primary health services not conducted, poor resource accounting systems, it is difficult to ascertain effect of such services on the community, level of ineffectiveness and inefficiency.

5.6.3: Health Facilities

Health services in Nigeria are provided from a wide range of public and private health facilities. A study by the Directorate of Food Roads and Rural Infrastructure in 1987 indicate that Nigeria has an estimated 100, 000 villages and autonomous communities. The ministry of health estimates 10,711 health establishments at the primary level, thus giving a health facility/village ratio of 1/10 (FMOH, 1991). Furthermore, the vast number of secondary and tertiary health facilities are in urban areas. This unequal distribution creates difficulty for patients referred from rural primary health facilities and those who require higher level services. Patients often travel long distances to obtain services. A situation compounded by bad roads and transport problems, particularly in very remote areas and those with harsh geographical terrain.

Since 1989, the Federal Government has taken measures to ensure at least one secondary health facility in each LGA. Effectiveness of the PHC referral system depends on available and accessible secondary health facilities. Table 5.7 shows the distribution of the various health facilities in the country.

5.7.1: Health Information

The Federal Government recognises importance of an effective health information system in management, planning, monitoring and evaluation of health services. A provision was thus made for establishment of national information system that could also serve as a management tool. Purpose for the national information system as contained in the policy document was to: assess health status of the population, identify major health problems; set priorities relevant to each level of the health care; monitor progress toward the attainment of health goals and objectives; provide indicators for evaluating the performance of health services and their impact on the health status of the

population; and provide information to those who need to take action, including data producers and the public(FMOH, 1988).

Table 5.7: Number Health Facilities

Level of Health Care	Type of Health Facility	Number	Beds
Primary	Clinics & dispensaries	4050	
	Health Centres	740	
	maternity Centres & homes	3090	26,650
Secondary	General Hospitals	760	50,100
	Specialist Hospitals	_	4,300
Tertiary	Teaching Hospitals	14	7100
	Military Hospitals	16	3000
	Specialised Hospitals	27	4600

Source: WHO, (1992), Local Government Focused Acceleration of Primary Health Care: The Nigerian Experience. Report of a WHO Review. SHS/DHS/92.1. WHO, Geneva.

Each level of health system was assigned responsibilities. At the national level, the federal ministry of health is responsible for the development, introduction, and maintenance of an effective national health information system; co-ordination of health information data; collection, processing and presentation of relevant and essential information for national health planning. The State ministries of health are responsible for collecting health information from local governments and prepare data for state health information system. Local governments collect health data within their jurisdiction.

Within this framework two broad categories, albeit parallel health information systems are in operation. The Disease Notification System, concerned with collection of data from secondary and tertiary health institutions from the states and the PHC monitoring and evaluation system, now the PHC management information system. To understand the PHC Management information system's operation in its proper context, perhaps discussion of the development of health information system in Nigeria is essential at this point.

5.7.2: Development of Health Information Systems

Health Records Keeping

There is no documentation or a clear understanding of the development of health information systems in Nigeria. However, since the advent of orthodox medicine some form of record was maintained on social and health status of individuals that come in contact with health facilities. It could be concluded that medical record keeping in health facilities evolved along side orthodox medicine. When the Sacred Heart Hospital was first established in Abeokuta in 1895, coupled with Royal Military hospitals , patients' records were kept by nursing sister, albeit hapharzardly (Akanji, et .al .1994).

Health data were kept mostly in missionary hospitals e.g Iyi Enu hospital Onisha, 1907, Wesley Guild Hospital Ilesha, 1913. Cards issued to patients were stored chronologically by the matron after use. As early as 1913, however, Professor David Morley was able to use punch cards for coding according to disease classification at the Wesley Guild Hospital. The first medical records department was established in 1948, with the establishment of the University College Ibadan and subsequently the department of Surgery.

On November 18, 1971 the Nigeria Association of Medical Records Officers (NAMRO), was launched at the Lagos University Teaching Hospital. On December 9, 1977 the name was changed to Nigeria Health Records

Association (NHRA). In 1978, approval was given for the upgrading of three schools of medical records at Lagos, Ibadan and kaduna to offer Diploma training and two years later in July 1982, the first batch of 19 students graduated.

Other institutions were later approved for training, Ife University Teaching Hospital Complex, the University of Maiduguri Teaching Hospital and the Army School of Medical Sciences. Training programmes include national certificate, ordinary diploma and a higher national diploma. The practice of national health records in Nigeria is covered by decree no 39 of 1989, on rules and regulations covering the practice of health records in Nigeria. promulgated and contained in Federal Republic of Nigeria Official Gazette, no.71 Lagos 11 December, 1989, vol. 76. pages A441 to A456.

Thus far these attempts have been on the improvement of health records in secondary and tertiary health facilities. Akanji et al. (1994), report that by 1990, 703 had been awarded national certificate; 234 ordinary diploma and 176 higher national diploma.

5.7.3: National Health Information System (NHIS).

Disease Notification and Surveillance

The FMOH (1988), concedes planning, monitoring and evaluation of health services in the nation were hampered by dearth of reliable demographic data and a system for registration of births and deaths was defective. Consequently, calculation of simple indicators such as crude birth and death rates, infant and child mortality rates were not possible. National health status was based on scanty inaccurate and unreliable data. Effective management of health services required establishment of an integrated national information system.

Indicators were identified for which data would be collected for monitoring and evaluation of health status. Health policy indicators address government's commitment to health for all, adequate financial support, equitable distribution of health resources, community involvement in health decision making and provision of services, effective organisational structure and management process. Health status indicators include nutritional status, mortality and birth rates, life expectancy and fertility rate. Socio-economic indicators address rate of population increase, income distribution, employment, food availability, housing, literacy, and general sanitation. Indicators for monitoring of health services provision and utilisation, include coverage of primary health care in all its ramifications.

In January 1988 a National workshop on health surveillance was held, from which a new system of disease notification emanated and was approved by the National Council on Health in 1989. The new system involved data collection on forty notifiable diseases using form DSN- 002 and emergency notification using form DSN - 001, which became operational in January 1990.

In 1991 the FMOH repoted that routine returns had increased from 30% to 80% by the half of 1990 and immediate notification had significantly improved (FMOH, 1991). However, there were still problems with the new reporting system which included the lack of participation by several states; late submission of reports from those participating; and improper compilation of data. Data collection processes and tools are continually being modified.

PHC Monitoring & Evaluation System(M&E).

The monitoring and evealuation department was established with the adoption of PHC in 1986, to collect data for assessing health indicators within primary health care. The M&E system was piloted and established in the 52 model LGAs between 1987 and 1991 (FMOH, 1992). Following the pilot phase,

series of consultative workshops were organised at which lessons learnt provided basis for revision of reporting forms and the M&E manual. The new reporting system was effected in 1992. With the establishment of NPHCDA in 1991 a department of planning research and statistics and a division of monitoring, evaluation and research was created.

Thus far three parallel information systems are in operation. Medical record system within hospitals which may or may not contribute to the disease notification system, depending on its establishment within hospitals; the disease notification system;and the PHC Management Information System. The PHC management information system was a positive development, designed to allow for an integrated information flow, for monitoring and evaluating PHC services, with data derived from the local government areas and community, health facilities, village Voluntary Health Workers (VHWs), and Traditional Birth Attendants (TBAs).

Community level

The system of data collection begins at home. The growth chart is used for monitoring child's progress, recording immunisations and visits to health facility. Village health workers in close contact with families are expected to detect, report abnormalities and institute appropriate intervention where possible. Record of data on children 0-4 years are maintained in PHC child card which contains growth monitoring chart and treatment card. For children above four years and adults, the personal health card contains biographical data, treatment received from health facilities, as well as ante natal care for expectant mothers. These cards are kept within the household, while community based records are kept by the VHWs and TBAs, usually recorded pictorially. Record of services provided by TBAs and VHWs are submitted to the health facility officer for compilation.

Health Facility level

At this level record of work performed by VHWs/TBAs are kept by completing Book 1HF, monthly and annual records, this comprises 8 forms, 1HF (1-8). In addition, for recording health facility activities, Book 2HF of which there are eight, for the eight components of PHC being monitored, plus Books 2HF (A) for annual reports, of which there are eight.

Activities for which records are kept include the number of immunisation carried out; cases of measles, malaria and diarrhoea; number of births and outcome of pregnancy; live births with weight less than 2,500gm, indicating maternal malnutrition; availability of essential drugs; and attendance/ reattendance to clinics. Data collected at this level and those from VHWs and TBAs are forwarded to the Local Government PHC Department Monitoring and Evaluation Unit.

Local Government Level (LGA)

At the LGA, Book 1LG, consisting of eight forms are used to summarise monthly and annual records of work performed by VHWs/TBAs. On the other hand, Books 2-8LG, containing forms 1 and 2 each are used for compiling monthly and annual records of activities in the LGA from health facilities. The LGA PHC Co-ordinator is responsible for effecting primary care programmes as well as overall responsibility for the PHC. the Assistant PHC Co-ordinator Monitoring and Evaluation, is responsible for the LGa management information system, organising data collected at the community and facility level. At this level organisation of data centres on key primary health activities i.e. environmental sanitation, immunisation, essential drugs, family planning, maternal health, child health, disease control, nutrition.

Data collected are expected to provide information on cleanliness of homes; number of wells, latrines and bore holes dug; the number of children fully

immunised; nutritional status of the population; utilisation of family planning facilities; level of maternal child health activities as depicted by ante natal visits, tetanus toxoid immunisation, outcome of deliveries and post natal visits; level of community participation, through activities of the Village and District Health Committees. Reports are forwarded to the NPHCDA Zonal Office, the State PHC Department, Monitoring and Evaluation Unit.

State Level

The State PHC Monitoring and Evaluation Department scrutinise reports from the LGAs, identify any problems, assist the LGA involved to resolve problem, provide technical supervision to ensure effective operation of the management information system. Summary reports are compiled and submitted to the federal level, in this case the National PHC Development Agency, Monitoring and Evaluation Division.

Federal level

The M & E Department of the NPHCDA, compiles and analyses reports from the 589 LGAs in the country. Results in the form of feedback are expected back to zonal offices, state PHC departments and LGA primary health departments. Recently and perhaps an attempt to integrate health information results are sent to the Epidemiological Department of the FMOH, where information from primary and secondary health services are thus merged, published in the Nigeria Bulletin of Epidemiology, and distributed to all health ministries and local government PHC departments.

Tools for data collection at all levels within the PHC MIS are designed and provided by the federal level. Objectives are established and time table for submission of reports provided by the federal level. These are measures taken to promote uniformity, consistency and perhaps facilitate establishment of an

integrated MIS. Tables 5.8 shows MIS objectives set by the federal ministry of health under PHC. Figure 5.1 shows the organisation structure of the PHC MIS and table 5.9 represents time table for submission of reports from community to LGA, to the State and Federal levels.

5.8 Summary

The adoption of primary health care system brought unprecedented changes in the Nigerian health system. The first national health policy legitimised restructuring of the health system and establishment of various components of PHC. Assessment of all aspects of the health system, evaluation of health services, require the right quantity and quality of information, thus the establishment of the PHC management information system.

The aim was to improve decision making and management of primary health services particularly at the local level; provide information for assessment of local and national health situations. Information for national and local health assessment within the PHC MIS are based on data collected from the communities. Quality of such information depends on data collection processes at the source of data collection, which would affect all decisions, plans and policies based on such information. However, the health information system from inception has not thus far been able to produce reliable information and thus effective health planning, management and assessment of health servivces are severly hampered. Paradoxically, causes for this intractable in effectiveness in the health information system are yet to be identified.

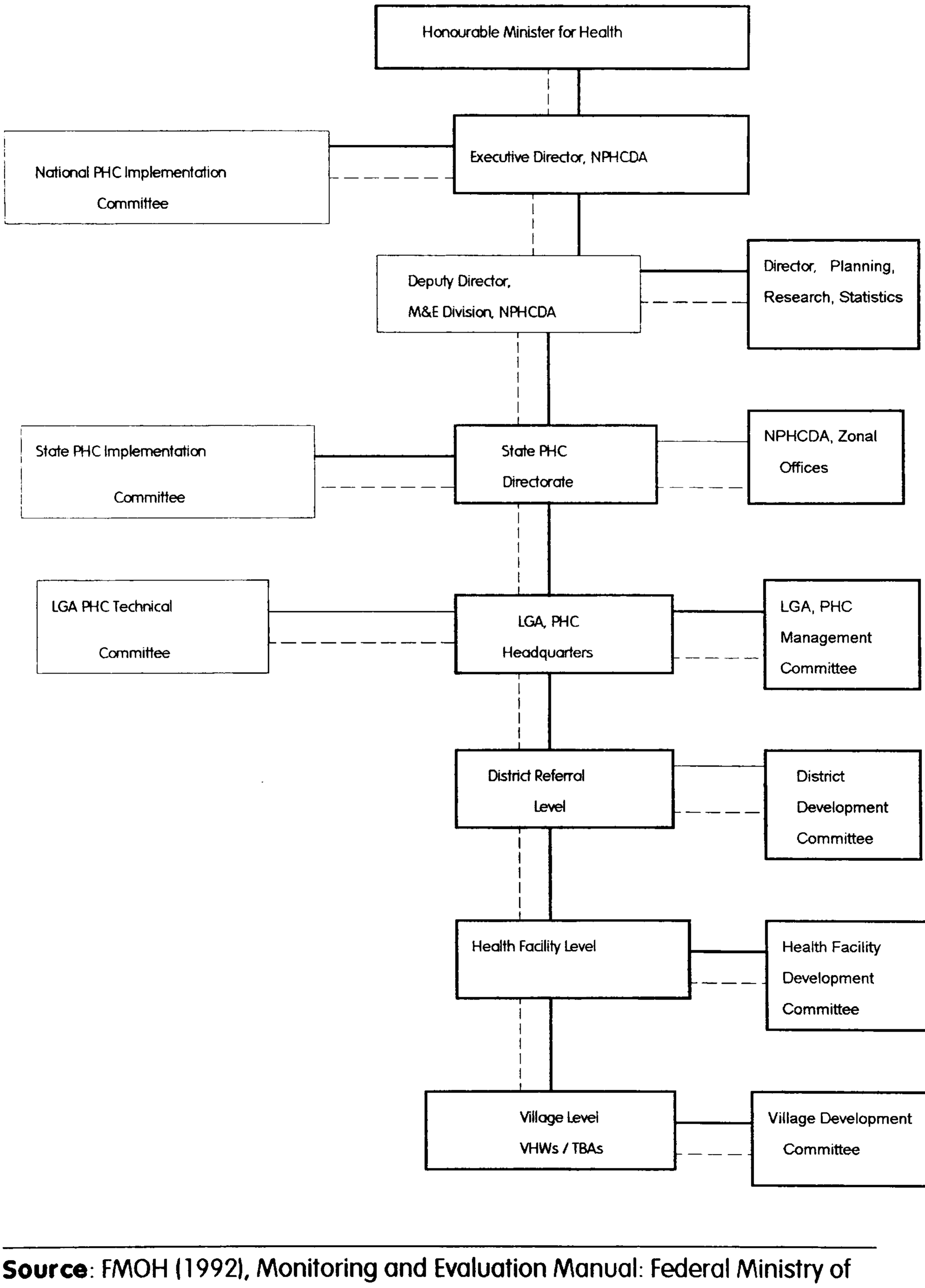
This gave impetus to the present study in order to understand the nature of the health Information System in Nigeria. Quality of the PHC information system was examined with Bama primary care as case study. In the next chapter, results of the research are presented.

Table 5.8: Health Indicators for Assessment Under the MIS.

PHC Topic	PHC National Objectives by the Year 1992	Source of Data
EPI Coverage	80% of children will be fully immunised with 1BCG, 4 Polio, 3 DPT/OPV and 1 Measles at one year of age	Special coverage surveys, M&E forms for children 0-12 months
Ante-natal care	50% of pregnant women will be fully immunised with 5 doses of tetanus toxoid	Special surveys including home based adult records, M&E forms
Nutrition in pregnant women	90% or more of new-borns will have a birthweight of 2500gr. or more	M&E forms on pregnancy outcome, survey of home based health cards
Nutrition in children 0-3 years	90% of children 0-3 years will have a weight for age above the 3rd percentile	M&E growth monitoring forms, survey of growth monitoring
Health care coverage for pregnant women	70% of deliveries will be attended by a health worker or a trained TBA	M&E forms on pregnancy outcome, survey, VHW records
Family planning	10% of women in reproductive age will use modern family planning	M&E forms on family planning, survey, VHW records
Access to health services	80% of population will live within 5 kms. or 1/2 hour from a health facility or VHW	Survey and maps
Potable water	40% of the population will live within 200 meters of a source of potable water	Survey
Latrines	60% of the population will live within 50 meters of a pit latrine or toilet	Surveys
Essential drugs	80% of VHWs/ health facilities will have 80% essential drugs available continuously	

Source: Ransome-Kuti, .O. et. al. (1991), Strengthening Primary Health Care at Local Government Level: The Nigerian Experience, Academy Press Ltd. Lagos.

Figure 5.1: PHC Management Information System



Source: FMOH (1992), Monitoring and Evaluation Manual: Federal Ministry of Health & Human Services, PHC Department.

Table 5.9: Time Table for Report Submission

Level	Regularity	Last Date of Receipt
Village to health facility	Monthly	Last day of the following month. For January report, deadline is February 28.
Health facility to LGA	Monthly	End of first week of the following month. January report deadline is March 7
LGA to State	Monthly	End of the second week of a third month. January report deadline is March 14
LGA to Federal Monitoring and Evaluation Division	Monthly	End of second week of a third month. January report deadline is March 14
State to NPHCDA Zonal office	Quarterly	End of second week of third month of the following quarter. January to March, deadline is May 14.
Feedback Process		
NPHCDA to Zonal Offices	Quarterly	End of second week of third month of the following quarter. January to March deadline is May 14
NPHCDA to State PHC Director	Quarterly	End of second week of third month of the following quarter. January to March deadline is May 14.
NPHCDA to LGA	Quarterly	End of second week of third month of the following quarter. January to March report deadline is May 14
LGA to health facility, to VHW and health committee	Quarterly	Same as above

Source: FMOH, (1992), Monitoring and Evaluation Manual. Federal Ministry of Health and Human Services, PHC Department, Lagos.

CHAPTER 6

BAMA PHC MANAGEMENT INFORMATION SYSTEM:

STRUCTURE, PROCESS AND OUTCOME

6.1: Introduction

In chapter five structure of the Nigerian health care system and that of the information systems within its frame work was discussed. The present study focused on assessing quality of the PHC information system. The Bama PHC system was used as a case study. The structure, process and outcome approaches to quality assessment provided frame of reference for data collection, organisation and analysis. Research findings are presented in this chapter. The PHC Department comprises six functional units, each unit generates data for specific PHC component. Within the framework of the PHC management information system, responsibilities of each unit, relationships, resources for accomplishing tasks, information generated, utilisation of information generated and implications for the provision of health services are presented. Organisational structure of Bama PHC information system is on Figure 6.1.

In order to assess quality of the MIS in-depth data collection was required, which centred on activities, personnel, materials, policies and procedures, within the MIS in the community, health facilities, the LGA, state and federal levels. Attempt is made to organise discussion in terms of the structure, process and outcome within each unit and at each level of the health system.

The chapter is divided into two parts, findings and discussions in part one are based on research data derived from qualitative techniques, mainly observation as well as structured and unstructured interview. In part two

perception of managers about the structure process and outcome of the information system, derived from administered questionnaire, is analysed.

Review of the structure, process and outcome models

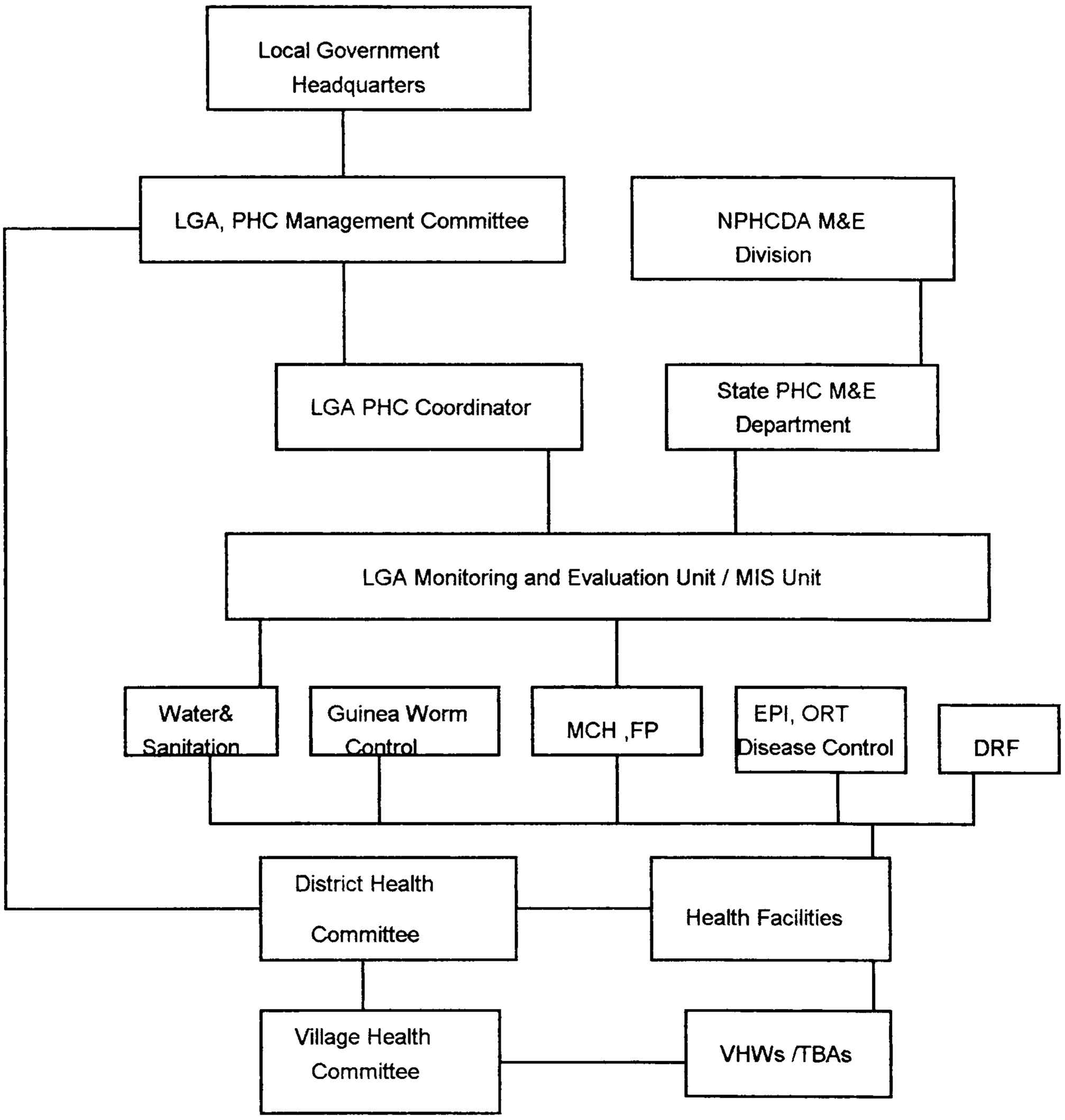
The Structure, process and outcome approach to quality assessment were addressed in chapter three. To recapitulate, in structural quality assessment human and material resources are normally examined, related to stable characteristics of the health system, that are needed to provide quality health services. Assessment of structure in health care services involves evaluation of the quality and quantity of the three sets of resources. The actual physical facilities in which care is provided, adequacy of required supplies, amount, type and condition of equipment. Staffing, the number of professional and non-professional staff, ratio of personnel to patients, qualified and non qualified staff, their qualifications and experiences. Provision of training and staff development. The third area is the structural or organisational arrangements, existence of up to date procedure manuals, composition of professional committees, adequacy of systems dealing with quality measures, record keeping systems and maintenance of equipment.

Process comprises those activities carried out during service provision. Donabedian, (1980), argues that the most direct means to assess quality of care is by assessing the care provided, 'the process.

Outcome is indirect approach to quality assessment, based on the extent that change in patient's current and future health status can be attributed to preceding services received. This includes physical, physiological, social and psychological improvements, as well as patient attitudes and health knowledge acquired by patient in the process. It aims to measure attainment of health care objectives, which include reduction of mortality and morbidity rates; promotion, restoration and maintenance of health; alleviation of pain and suffering;

promotion of patients ability to live socially and economically productive lives; patients' satisfaction with health care services; and efficiency and effectiveness in the provision of care.

Figure 6.1: Bama LGA Management Information System



6.2.1: District and Health Facility Level

Background

At the village and community levels, information are generated from activities of village voluntary health workers (VHWs) and traditional birth attendants (TBAs). Services provided by VHWs include first aid, immunisation, diagnosis and treatment of minor ailments, distribution and sale of essential drugs. The TBAs provide prenatal, perinatal, postnatal and family planning services. On the other hand rural health facilities provide a wide range of services, that include health services of both primary, secondary, restorative, as well as social services. The village and District Heads play supportive roles, by facilitating community participation in PHC activities; ensuring community health needs are presented and resolved; and monitor activities of health workers in their jurisdiction.

There are four districts, Bama the largest with 11 village units and an estimated 150,000 people; Daraei-jamal a newly created district with six village units and approximately a population of 8,000; Woloji district with 11 village units had an estimated population of 52,000; and Gulumba district had about 10,000 people with 8 village units.

Structure

In Bama district there were 4 PHC health facilities and a general hospital, one PHC facility in Daraei-jamal, 4 in Gulumba and 4 PHC facilities and a comprehensive health centre in Woloji. Population and health facility distribution are presented on table 6.1. There are approximately 97 VHWs and 105 TBAs in Bama, basic training is provided locally by the PHC Department which would equipe workers for the provision of rudimentary services. VHWs are nominated by members of the community and endorsed by the Village or District Head. On the other hand TBAs are usually traditional midwives in the community, training

is provided to refine skills, ensure compliance to aseptic procedures and the application of improved technology. At the end of training a kit with essential materials necessary for safe delivery is given to each TBA. (Co-ordinator, MCH, 1993).

Data collection tools comprise, home based records which consist of two sets of record: the PHC child health card, containing growth monitoring chart and treatment card for children 0-4 years; personal health card for children over five years and adults, this contains information on treatments, contacts with health facilities, including maternity data. In addition record of services provided by VHWs and TBAs are kept on pictorial forms and tally sheets, record of drug use and sale are also maintained.

According to the PHC Co-ordinator, **The Village Health Committee** supports and ensures that TBAs and VHWs perform their responsibilities; mobilise members of the community to participate in PHC programmes; select members of the community to be trained as VHWs and TBAs; supervise and monitors their work in the community; identify health needs, solutions and resource requirements; and proffer suggestions to the District Health Committee.

This committee comprises the Village Head as Chairman, Ward Heads, a school teacher as secretary, health facility officer, where there is one, VHWs supervisor, religious leaders, women representative and representative of any organised group. Information generated by the committee are presented at the District Health Committee meeting. From all indications, the village health committee is not operational in the real sense, most activities are conducted at the district level, where established, otherwise Village Heads would report to the District Head. In some communities leaders have dual roles, as both the Village and District Head.

The District Health Committee, chaired by the District Head, determines health needs of the community; monitor and evaluate PHC activities provided by health workers; mobilise communities to participate in PHC programmes and engage in self help projects; ensure effective implementation of PHC programmes at village level; liaise between village, district and LGA levels; and present issues emanating from monthly meetings to the LGA Chairman and PHC Co-ordinator. Membership includes, health facility officer, School Headmaster, Village Heads, religious leaders and any other relevant organisation in the district. Two of the four district heads were interviewed.

Table 6.1: Districts, Population and Health Facility Distribution

District	Population in thousand	Facility	PHC/non
Bama	153,000 11village Unit	1.Bama hospital 2.Bama MCH 3.Tandari MCH 4.Soye health Clinic 5.Army clinic	Secondary PHC ▪ ▪ ▪
Darajamal	8,000 6 village units	1.Health clinic	PHC
Woloji	52,000 11 village units	1.UMTH health centre 2.Kumshe health clinic 3.Banki dispensary 4.Taramuwa clinic 5.Bakari	PHC ▪ not functioning
Gulumba	10,000 8 village units	1.Kashimiri clinic 2.Gulumba clinic 3.Amchaka clinic 4.Walasa clinic	PHC ▪ ▪ ▪

Interview with District Heads

The District Head of Woloji/Village Head of Kumshe,

This interview took place at his residence in Kumshe which was about 68 kilometres from Bama. Notes were taken and interpretation was provided by one of the PHC unit co-ordinators who accompanied me at this visit. The District Head spoke only Kanuri, the main local language for this community, aged 72 and had no formal education. He seemed enthusiastic, satisfied with PHC programmes in the district and had a clear appreciation of his role. When asked what he thought about primary health care in the district.

He reported there had been positive changes and he was pleased with the new situation of things. His peoples' knowledge of PHC had increased, and that government was more responsive to their requests. He gave examples,

"drugs are more available, our requests are attended to with minimal delay. A new clinic has just been constructed in Bakari, bore holes are being dug, water and electricity are available, the people are happy".

His opinion was, although services had improved there was still the need for more health workers. Then he pointed to the health facility officer that was with us and said,

"look at this young man he works very hard, he has only one person to help him, every night they wake him up meaning members of the community, and during the day he cannot sleep. He is a very good boy and knows what he is doing, I requested transfer of the last one, who was very lazy" As mentioned earlier, all health workers in the community are responsible to the District Head as well as their professional leader. Generally, traditional leaders, as custodians of their community are accorded great respect in the society, particularly in rural communities.

Although, he expressed satisfaction with PHC services and changes within the system, perhaps this may be more related to increased involvement of local

leaders, since devolution in 1991, from hitherto no involvment at all, rather than improved services. Obviously, more health facilities are built, there level of operation are poor. Undeniably however, there are more drugs in health facilities than what prevailed prior to the essential drugs scheme. I visited the new health facility in a remote area, which was mentioned, it was shut, there was no equipment and the responsible health officer was away during our visit.

I asked the District Head how the TBAs and VHWs were performing, he reiterated the need for more workers and went further to say that although the TBAs were doing what they could, there seemed to be resistance from the people. When asked what the nature of resistance was, he simply responded that it was a local matter being resolved locally.

The main purpose for training TBAs at the outset was to ensure safe delivery within the community, since most rural women often had deliveries at home, assisted by other women or traditional health practioners under rather unsalutary conditions. The role of TBAs was accomodated and to some extent respected. However, as this was extended to the sale and dispensation of family planning devices, level of acceptance began to dwindling. It is important to appreciate that traditionally and religiously, within the sociocultural context, any device for controling birth is often resisted by men, since it is assumed to promote promiscuity and interfer with the work of God. Based on this premise, it is understandable that the intentions of TBAs are treated with suspicion and are being isolated by members of the community.

In terms of his role within the MIS, I asked him if a district health committee was established and whether meetings with village heads and other health workers were held. He said meetings were held regularly and it was very important for them, none was held in July due to the 1993 general elections. I asked him what was normally discussed at these meetings.

"Reports are received from village heads, and sometimes health workers come to complain about their problems or new developments in the community, new health problems or someone with serious illness. If there was anything needed for the people, it was discussed. But people come to see me anytime to discuss any problem not only at meetings since some problems cannot wait".

The fact is, traditional leaders enjoy visitations from their subjects, it is part of the local tradition. Foe example this interview was not scheduled and no appointment was given. On my arrival, message was sent that I wanted to speak to him and we were warmly welcomed.

When asked what he did with information derived at meetings and specifically if they were discussed with the PHC Co-ordinator. He said there had never been discussion with the Co-ordinator, but found it easier to send reports to the LGA Chairman, who responded promptly to his requests. He did not think it was necessary to send reports to the PHC Co-ordinator, he thought the Chairman always communicated to the co-ordinator and in emergencies the health officer was sent to get help from the PHC department.

Well traditionally, the District Head cannot possibly be responsible to the PHC Co-ordinator and therefore may not enjoy sending reports to him. Furthermore, leaders are aware of who controlled resources, in this case the LGA Chairman.

I asked if he attended the LGA PHC Management Committee meetings, he said he had never been invited. A committee meant to bring together district heads, political leaders, health managers and managers from related ministries to share information and discuss health matters.

I asked him what the population of his district was, he quickly said it was 80,000 and that the recent census results were wrong to have reported only 52,000. A major discrepancy between perceived and official size of the district.

The interview concluded with informal discussion on other issues, after which he was thanked for receiving us without prior appointment and for his contribution to PHC in the community.

The District Head of Bama

A younger man in his mid thirties, with secondary school education, quite articulate, had worked as an officer in various capacities in the Local Government, succeeded his diseased father as district head in 1990. He lived in Bama town about five kilometres from the PHC office. Unable to meet him at the office after several attempts I met him at home, we were warmly welcomed and sufficient time given to us, albeit with no formal appointment.

I started off by asking what he thought about the PHC programmes in Bama. He acknowledged awareness of a PHC programme and of changes taking place, however, he denied knowledge of what these changes were. He said,

"I have never been consulted during planning and implementation of PHC programmes. I am only consulted when there is problem, when people are not responding to directives from the PHC Department, then it would be brought to my attention".

In response to whether he knew what his role in primary health care was, within the community. He was not aware of any role, he had not been told. This I found rather unusual since he lived only a few kilometres from the LGA Council and the PHC Department. When I enquired how the health needs of his district were determined. he responded,

" to be honest with you I don't know, services are provided that is true, my input and those of my village heads are not sought, I do not know what is going on, we have been told by federal government that so much is being given for PHC but no one is telling us anything here in Bama".

In terms of the district health committee meetings, he asked me to tell him what it was since it was his first time of hearing about it. If he was expected to carry out such responsibilities, he ought to have been formally informed and money provided for its implementation. He was not aware of village health committee meetings being held in his district, neither was he aware of existence of the PHC Management Committee.

I asked him to give me his general impression about PHC in Bama LGA. His response,

"the immunisation exercise was very successful because we encouraged people to participate, without the people it would have been a failure. I think those running the programme must open their minds and get us involved if they really care about the people. At the moment we don't know what is happening we only hear that government is giving so much money but what it is used for we do not know, they claim to have done so much, (the PHC department), they had done this and that but where is it. I am very disappointed".

Process

Data recorded by TBAs and VHWs are submitted to supervising health facility, where they are transferred to appropriate data forms. Health facility officers reported that submissions from TBAs and VHWs are often delayed for a number of reasons ranging from difficulty in completion of forms, lack of transportation; lost of interest in PHC due to hostility from neighbours, particularly in the case of the TBAs who are often accused of assisting western medical practitioners to inflect harm on women in order to render them infertile; and reluctance to account for resources utilised.

6.2.2: Health Facility Level

Structure

There are 2 maternal/child health clinics both situated in Bama; 7 health clinics, 3 dispensaries, 3 dressing centres and 10 leprosy centres. The 1992 PHC national objective was that 80% of the population would live 5 kilometres or 1/2 hour from a health facility or VHW. There were two qualified nurse/midwife within the Bama PHC system, with at least one health officer in each health facility but obviously a preponderance of unqualified workers. Table 6.2 gives a breakdown of the qualifications of health facility officers.

In terms of forms provided by the FMOH, all but one health facility that had made submission and was awaiting replenishment had sufficient quantity of the relevant forms. Activities of TBAs and VHWs are recorded by supervising health facility in Book 1HF which contains 8 forms, for monthly and annual records of the eight PHC indicators being monitored. In addition Books 2HF 1-8 containing 27 forms are for recording activities at the health facility level. The first set of forms were supplied to health facilities in August of 1992.

General services provided to patients are recorded in the health facility register. All of the 10 health facilities visited had an up to date register that was in good condition for 1993. only 5 had registers for 1992, 2 had register back to 1991, 1 health facility presented partial register for 1990 and no facility had a register before 1990 (figure 3)

No health facility however, had a copy of the M&E manual, there was no documented guidelines or objectives of the MIS. There was no formal training on the MIS process, the M&E Co-ordinator went around health facilities and showed officers how to complete forms.

Distance from health facilities to the PHC Headquarters in Bama varies, ranging from 10-120 kilometres, with access to many difficult throughout the year particularly during the rainy season. This is of particular importance, since

it has bearing on ability to receive and submit completed data forms. For example Amchaka clinic is about 210 kilometres away from the PHC Headquarters. Commonest means of transportation are motor bike and donkeys. Distances of health facilities from Bama are presented on table 6.3 .

Lack of transportation was given by 100% of respondents; 60% did not understand forms well; 100% reported that completing forms was time consuming; only 20% reported having training on how to complete forms; 0% understood the information system and 0% had received any feedback from upper levels. 20% said information was collected for local use while 100% reported that information was for the federal ministry of health and 30% used information for decision making at the facility.

Table 6.2: Staff Strength at PHC Health Facilities Visited

Facility	Nurse/ midwife	CHO/Q	non Q
Bama MCH			
Tandari MCH	1	0	7
Soye clinic	0	1	1
Darajamal clinic	0	1	4
Kashimiri clinic	0	1	0
Gulumba clinic	0	1	1
Banki dispensary	0	1	1
Kumshe clinic	0	1	2
Taramuwa clinic	1	0	2
Bakari clinic	not open	-	-

Process

Health facility officers ensured forms are submitted regularly and at stipulated time by TBAs and VHWs; examine forms for proper completion; and transfer data to book 1HF containing forms 1HF 1 to 8, for monthly and annual records of work by VHWs/TBAs. While PHC services for monitoring within the MIS are recorded in Book 2HF, 1-8. Information recorded include name of patient, sex, age, complaint, treatment, and was the only mode of information storage on services provided to the community. Commonly recorded diseases in the register are on table 6.4.

Weekly and monthly record sheets are thus submitted to responsible health facility supervisor, who collate, scrutinise, transfers information to appropriate forms and then submit reports. Completed forms are submitted to the PHC headquarters, major constraints expressed by health facility officers responsible for completing forms are on (table 6.5).

In terms of forms provided by the FMOH, all but one health facility awaiting replenishment had sufficient quantity of relevant forms (figure 6.2). Perhaps officers had no appreciation of importance of clinic registers as essential information storage equipment which could be accessed in future. In addition such information are very relevant in planning, assessment of disease trends and changes in disease patterns, and needed for determination of resource use and needs.

I wanted to know if information contained in the register had any significance to their work. Interestingly, 70% said it did but could not tell me how. 30% said it helped them understand the number of patients seen at the facility and their problems. However, officers that proffered uses for information derived from the register were two nurses and a community health officer.

Table 6.3: Distance of Health Facilities from PHC Department

Health Facility	Distance in kilometre
Bama MCH	5
Tandari MCH	10
Soye Clinic	10
Dara el jamal	35
Kashimiri	45
Gulumba	60
Banki	60
Kumshe	68
Tarmwa health clinic	95
Bakari health clinic	120
Walasa health clinic	80
Bembem health clinic	150
Amchaka health clinic	210
other Health Facilities	
General hospital Bama	10
Army barracks clinic	15
University of Maiduguri Teaching Hospital	
Comprehensive Health Centre Banki	55

Preservation of the register as the only information storage system would be considered vital. Health facility officers gave numerous reasons for non availability of past registers. 45% of officers said they were recently posted to the facility and could not account for past records. 35% said registers were discarded when filled up, since there was no other use for them. One officer simply said past registers were used to wrap drugs for patients treated at the clinic. This reflects general attitude of workers toward handling of health information, perhaps attributable to lack of appreciation of its significance.

Figure 6 2:

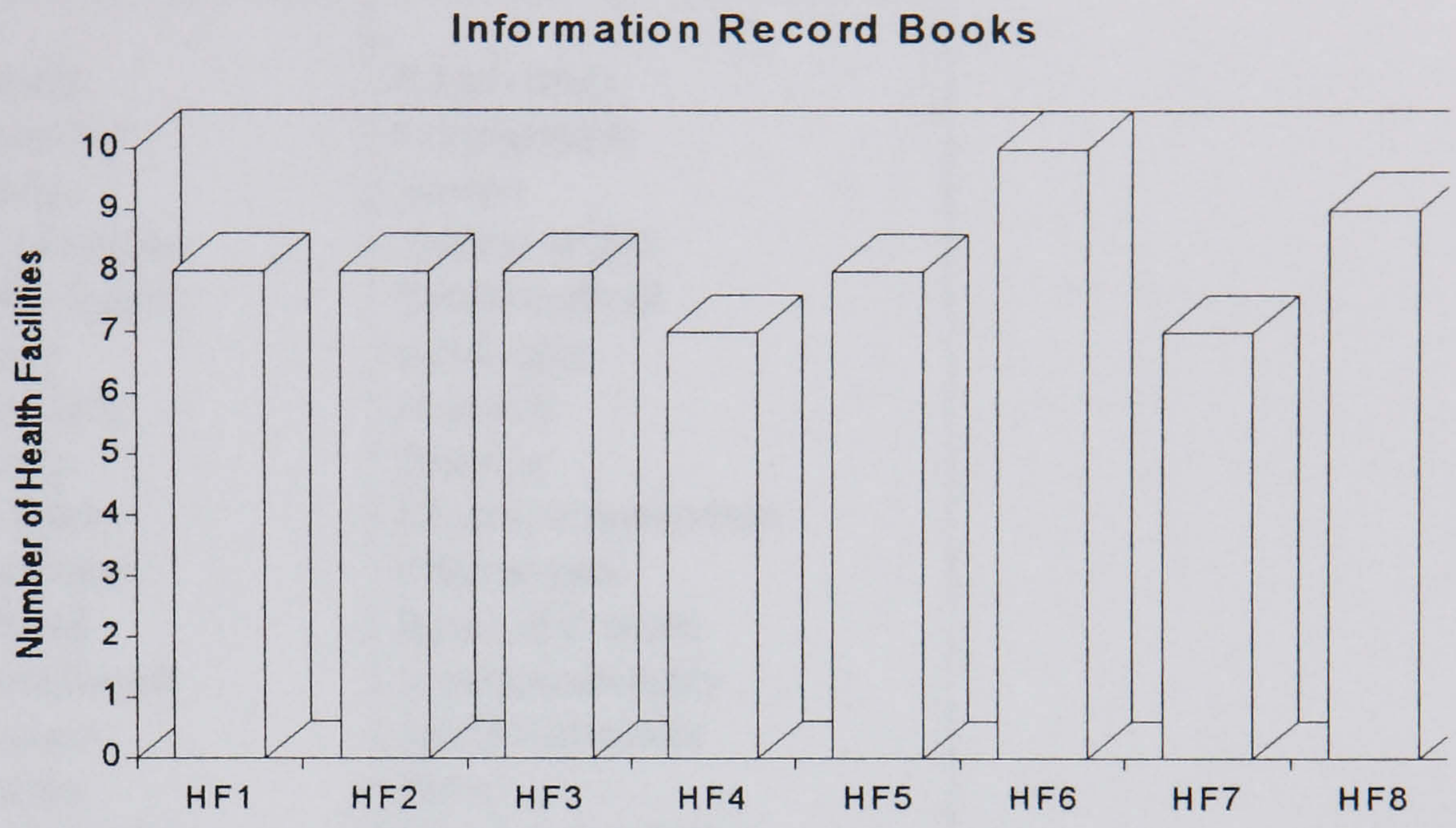


Figure 6.3: Available Health Facility Registers

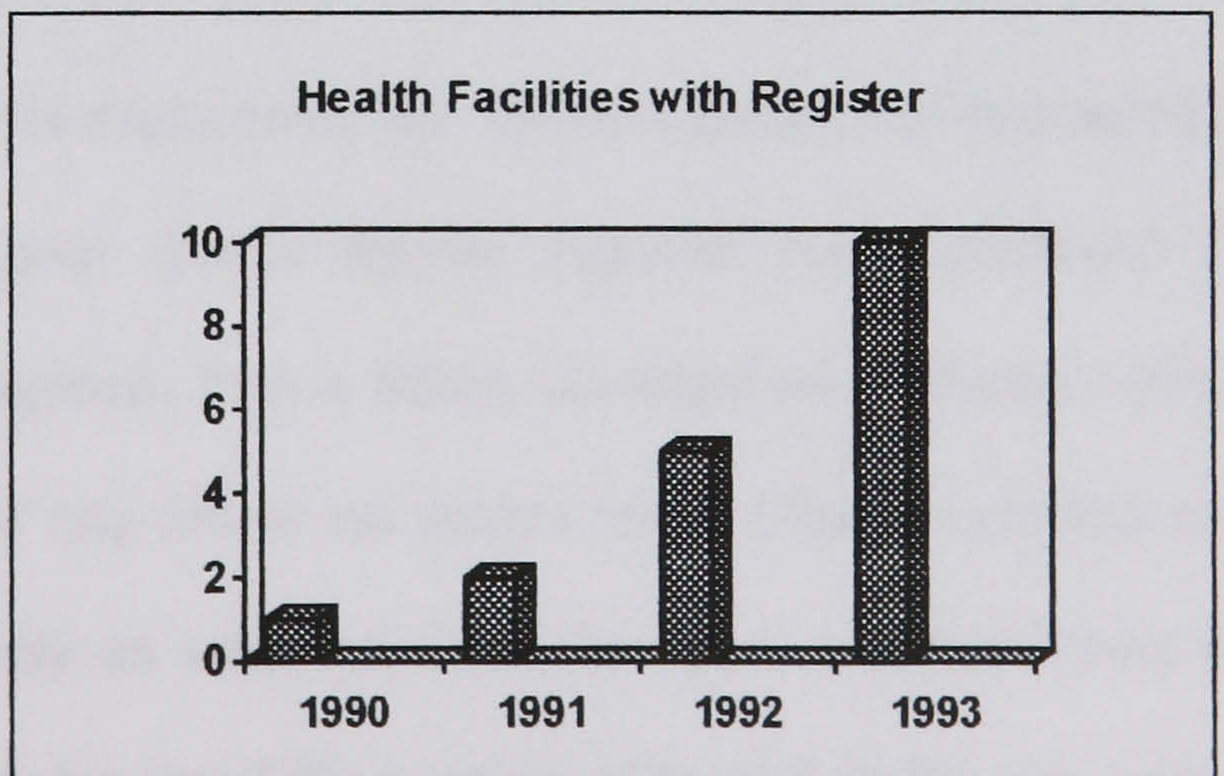


Table 6.4: Diseases Commonly Treated and Recorded in Health Facilities

Malaria	Pneumonia
Dysentery	Constipation
Syphilis	Hernia
Conjunctivitis	Guinea worm
Otitis media	Cerebrospinal meningitis
cough	Measles
Bronchitis	Tetanus
Gastro-enteritis	Chronic rheumatism
Diarrhoea	chicken pox
Arthritis	Burns and scald
Gonorrhoea	Schistosomaiasis
Abscess	Ankylostomiasis
Scabies	Fever
Skin infection	Nausea & vomiting

Accuracy is a determinant of quality both of the information system and decisions. Understandably, health facility officers were responsible for ensuring accuracy of data from VHWs and TBAs. However, there was no established mechanism for its implementation. Officers questioned conceded that data are accepted as given unless figures supplied on a particular service were unusually outrageous, then a follow-up might be instituted. Moreover it is an arduous job for any officer no matter how skilled to provide services for an entire community as was the case, complete multiple forms required and effectively scrutinise and follow-up on TBAs and VHWs. Consequently, figures are simply transferred from one sheet of paper to another.

Table 6.5: Reaction of Facility Officers Data Collection Process

Responses	Frequency	Percent
There are too many forms to complete	10	100
Does not understand form well	6	60
Had training on how to complete forms	2	20
Had seen the M&E Manual	0	0
Completing forms is time consuming	10	100
Information collected for local use	2	20
Information collected for FMOH	10	100
Use information for decision making	3	30
Need training on how to use information	10	100
Understand information system	0	0
Receive feedback from upper levels	0	0

6.3: Local Government Level and the MIS

At the LGA PHC level my focus was on activities of each unit in the PHC department, the structure for the MIS, data processing and utilisation, interrelationship of the units, information processing and utilisation, interunit communication and information exchange. The relationship of the PHC Department with related organisations in terms of functions, collaboration in information generation and exchange.

Effective implementation of all PHC programmes in the LGA is the responsibility of the PHC department, divided into six units water and sanitation; guinea worm control; essential drugs and equipment; disease control and expanded programme on immunisation(EPI) and oral rehydration therapy (ORT); maternal /child health (MCH) and family planning; and monitoring and evaluation (M&E).

6.3.1: Water and Sanitation Unit

Background

Government recognised the close link between health development and environmental health In the paste safe drinking water and appropriate means of excreta disposal were not commonly available. Studies in some parts of the country showed that an average rural person got less than 10 litres of water per day, 50% short of WHO recommended minimum requirement.(FMOH,1990). Moreover, main sources of water were open wells, ponds, streams and springs, often contaminated with human waste. This resulted in endemicity of diarrhoea diseases such as Dracunculiasis and Onchocerciasis.

Important role of PHC in water supply, sanitation and proper waste disposal was recognised. LGA PHC Departments were given the onus to: promote effective implementation of community water supply programmes leading to adequate supply of potable water; promote basic sanitation for prevention and control of waterborne diseases; mobilise community participation; and facilitate intersectoral collaboration as well as links with international agencies. The projected rural sanitation coverage for 1990, was access to potable water to 75.4 million people and sanitation to 83.8 million(FMOH,1990). Several projects are undertaken by the FMOH and donor agencies particularly UNICEF for drilling hand pump equipped boreholes and latrines in rural communities. I reiterate, the national PHC objective being monitored by the MIS presented table 5.8. It was projected that by 1992, 40% of the population would live within 200 meters of a source of potable water and 50% of the population would live 50 meters of a pit latrine. The water and sanitation unit in Bama is responsible for house inspection, refuse collection and disposal, burial of unclaimed corps, inspection of hotels, bakeries and bars, inspection of motor parks, public toilets, eradication of mosquitoes, monitor digging of bore holes and the supply of pipe borne water, collection, disposal of waste and ensuring general environmental sanitation.

Structure

There were 18 staff, 5 home visitors with secondary school certificates, who were trained on the job, 2 health assistants with secondary school certificate in addition to public health training, 1 health superintendent whose job was to supervise workers in areas other than Bama town, and 2 public health officers, the Assistant Unit Co-ordinator and the Co-ordinator. Remainder of workers were labourers and cleaners.

There was no written job description for any worker in the unit. The Co-ordinator stated that they had understanding of their responsibilities but there was no job description. The Unit Co-ordinator, a public health officer, had no management training but was undergoing a diploma course in health planning and management. The Acting Co-ordinator was a trained public health officer with no management training. There was no document on the MIS and its objectives, or written guideline on how it was to operate. I asked her if she had heard or seen the M&E manual, she said she hadn't heard of it. I explained what it was and there was a copy with the PHC Co-ordinator.

Book 7 LGA contains forms 7LGA 1&2 for monthly and annual records of environmental health activities in the LGA. There was a table, two chairs, no stationary whatsoever not even a blank sheet of paper, home visitors and other workers had no office and simply sat outside until needed. Data collection tool, for home visitors was very basic, a 20-40 leaf note book, pen or pencil.

Process

Information recorded are on number of new and old boreholes, dug wells new and old, stand pipes new and old, and number of pit latrines. Figures are transferred from health facility submissions to forms 7LGA 1&2, LGA 1 contains monthly submission from health facilities in the four districts. Form LGA 2, is an annual summary of submissions. Monthly and annual reports are then

forwarded to the M&E unit. In addition notes are taken on inspection exercises and passed to the unit co-ordinator.

I had the opportunity to take part in some home inspections. The 15 compounds inspected had 26 families (Households), each compound had a PHC number in front of the outside wall, every family had a PHC home record, there were one or more children in each family. Visits are usually not announced since housewives are expected and have been instructed on simple hygiene and sanitation.

Condition of the compound was assessed for cleanliness, proper waste disposal, condition of toilets (all had pit latrines), condition of cooking area and utensils, proper storage of drinking water and condition of water and condition of children in the compound. Women are advised on corrective measures for identified short comings, revisit are normally scheduled to ensure compliance to directives. In one compound with three households, the three housewives married to different husbands were present, at 12 midday the compound (internal and external) was not swept and rather unkempt, utensils and toys scattered carelessly, children were dirty and one had a bad case of what appeared to be conjunctivitis. The women were strongly admonished, reasons for the apparent lack of medical attention was sought from the child's mother, who proffered that eye ointment prescribed which had been applied for one week, had not been effective. She was asked to take the child back to the doctor and another inspection was scheduled.

Some home inspections occurred during a period in June when electricity supply was interrupted for seven days due to damages to power supply lines. Consequently, water source was equally interrupted since borehole generators are electrically operated. During the period of water scarcity people resorted to collecting water directly from underground tank for those who had it, which was what I did along with seven medical students on field experience who shared a house with me. Many local families resorted to abandoned wells or

polluted river water. This could have resulted in a serious epidemic, fortunately it didn't.

Outcome

To understand how data collected from the various health workers were organised, analysed and possibly stored and utilised, existing records had to be examined. All forms from the health facilities for 1992 had just been compiled, as at June 1993.

I asked the co-ordinator what was done with data collected. She reported that completed forms were submitted to the M&E Co-ordinator and was not used for any other purpose. She wanted to know what else could be done with the data. She reported that sufficient quantity of forms were regularly supplied by the Federal Ministry of Health, however, there were too many forms to be completed. When asked if she understood about the MIS, her conception was limited to what the M&E officer did.

She confirmed that forms were accurately completed, but when asked how that was determined she said by examining them. At this point we proceeded to examine forms completed by the unit and discovered a high level of discrepancy in figures recorded from one month to another and on the annual forms. No explanation was given for the gross inaccuracy.

The M&E forms proved to be the only well kept documents in the unit albeit temporary, that is in terms of their storage in files and accessibility. Records of inspections provided information on which to make decisions regarding compliance to sanitation standards. For example, since entrepreneurs must meet sanitation standards to retain certification, non compliance leads to warning, court action and possible forceful closure. The state of health of food handlers is also monitored, certification of good health is normally obtained from the Chief Medical Office of the General Hospital.

However, no single file could be presented on request. With the approval and assistance of the acting unit co-ordinator, rumpled papers were retrieved from the draws, which had information that could have been report. A file was equally retrieved from the bottom of one of the draws containing some more papers, that appeared to be applications for items to be purchased.

As the Acting Co-ordinator said,

" he did not like to keep records, when he went away, (referring to the unit co-ordinator), I could not find a single record. We are now trying to improve things"

I asked why he did not maintain record, no clear response was given other than it was political. When the Co-ordinator visited the unit on one occasion, I was able to hold a brief discussion with him, regarding the non availability of records in the unit, he pointed to the draws and brought out the same pieces of papers we had already examined.

Table 6.6: Sample Report of Bama District Monthly Record of Environmental Health on Number of Latrines 1992

Months	Bama		Tandari		Soye	
	New	Functional	New	Functional	New	Functional
January	5000	30,000	0	0	1000	5,000
February	500	40,000	0	0	100	5,100
March	486	4,532	0	0	92	5,100
April	476	4,520	0	0	82	5,009
May	462	4,568	0	0	80	5,007
June	460	4,566	0	0	78	5,005
July	458	4,564	0	0	76	5,008
August	456	5,464	0	0	74	5,002
September	452	5,460	0	0	70	5,000
October	450	5,454	0	0	68	4,976
November	450	5,438	0	0	62	4,970
December	450	5,438	0	0	62	4,970
Total =	10,100	120,004	0	0	1,844	60,147

Obviously there is serious problem with handling of data and information. What is even more disturbing is the degree of inconsistency in recording of figures, depicted in table 6.6. Data recorded on the number of latrines dug in the three selected communities seem to fluctuate with no apparent direction, either upward or downward, for each month. year. Detailed discussion in 7.4.3.

6.3.2: Unit for Expanded Programme on Immunisation

Background

In 1979 a nation-wide programme of immunisation was launched by the Federal Ministry of Health in collaboration with WHO and UNICEF, the objective was to immunise 75-85% of children 0-24 months, however at the end of that plan period only 5-10% of children were immunised. In 1984 it was reported that an estimated 200,000 children died annually from preventable diseases of measles, tetanus, poliomyelitis, tuberculosis, whooping cough and diphtheria (FMOH,1992). A new strategy was adopted in 1985, with the goal of immunising 80% of children under two years of age against the six childhood killer diseases, 50% of women against tetanus and to reduce mortality from these diseases by 50% by 1990. Results of a nation-wide 1991 survey based on crude data show that 95.5% of children 12 - 23 months old had been vaccinated with BCG, 81.1% with DPT3/OPV3 and nearly 85% had measles vaccine (FMOH, 1992).

It was only in 1991 that the target group shifted from children up to two years old to children in the first year of life. The same survey report shows that 56.9% of children up to one year had DPT3, 53.7% had measles and 43.7% were fully immunised. Monitoring and evaluation of EPI activities to a greater extent depend on timely, and accurate reporting of immunisation in every community. PHC national objectives monitored under the MIS was that by 1992,

80% of children would be fully immunised with 1BCG, 4 Polio, 3 DPT/OPV and 1 Measles at one year of age.

Oral rehydration therapy (ORT), is an approach adopted for treatment of diarrhoea cases with salt, sugar solution(SSS) made locally, or oral rehydration salts ready mixed. Treatment could also involve administration of intravenous fluid and antibiotics depending on severity and cause of diarrhoea. Cholera is often a culprit a serious infectious disease that depletes body fluid, requiring immediate replacement to avert imminent death. From January 1 to 16 August 1991 during an out break of cholera there were 36,196 reported cases with 4, 293 deaths affecting ninety six LGAs and 18 states. The highest number of reported cases of 16, 596 was from Borno State(FMOH,1991).

This unit is responsible for co-ordination of immunisation in Bama LGA, which include: identification of the need for vaccines; procurement and supply of vaccines to various health facilities; adequate storage; community mobilisation for prevention of outbreak of diseases; and distribution of ORT materials to health facilities.

Structure

To carry out its responsibilities the unit was headed by a senior public health superintendent, a public health superintendent as a field operation officer; five health assistants; one cold chain officer who managed the freezers and refrigerators and ensured drugs were properly stored at all times; one cleaning officer responsible for cleaning and recording equipment; generator operator for steady supply of electricity, due to erratic nature of supply.

The Unit Co-ordinator had no management training, nor training in the MIS process. There was no document on the MIS and its objectives, no guidelines on what and how the MIS should operate. There was no facility for processing and

display of data, no type writer, no calculator. The M&E manual was not available had been seen in the PHC Co-ordinator's office but had not been read.

There was no documented job description for his position or any other in his unit. However, as he pointed out " we all know what our responsibilities are and how to carry them out. In addition the unit co-ordinator, received basic training from UNICEF officials on management of vaccines and proper record keeping.

The officer reported that sufficient forms were provided but stationary were usually in short supply. Book 2 LGA containing forms 1 and 2 LGA are for monthly and annual records of tracer diseases and outpatient attendance, while book 5 LGA, contains forms 1 and 2 LGA, for monthly and annual records of immunisation in health facilities.

There were a table and three chairs in the cold room, shared with the cold room officer, as their office. The co-ordinator reported constant supply of vaccines and ORT materials. There were three large deep freezers for storage of vaccines and two large refrigerators.

Process

For data collection this unit operates under a different system and uses various forms to record immunisations, vaccines used, ORT treatments. Data are collected on immunisation against the six childhood diseases plus yellow fever and cases of diarrhoea treated in the LGA. In this case reports include data from the secondary health facility since the general hospital received vaccines and ORT material from the unit.

Reports are forwarded directly to the UNICEF Headquarters in Bauchi and copied to the State PHC EPI Department. No information was passed to the LGA M& E. unit, neither was there exchange of information between this and other units.

Outcome

Reports seemed well organised in files, there was obvious attempt to graphically display data on immunisation albeit crudely displayed on the wall. Lack of training was reported as major hindrance in organisation, analysis and the use of data. When asked about the graph on the wall, the officer viewed it as an attempt to imitate what he had seen in other organisations.

"I would like to be able to draw graphs but I don't know how"

When asked how information could be used, he indicated that it could tell him how the vaccination programmes were progressing and where there was problem.

6.3.3: Maternal / Child Health and Family Planning Unit

Background

Recently, maternal health has been accorded serious attention in Nigeria. In the past women of childbearing age continued to die from preventable problems. The FMOH based on a health profile in 1987 gives an estimated mortality rate of 15 maternal deaths per 1000 live births, based only on hospital records without accounting for deaths occurring in private health facilities, traditional birth attendants and healers, at home, and prayer houses.

Deaths are to a greater extent attributed to haemorrhage, ruptured uterus, eclampsia, anaemia, sepsis and hepatitis. Furthermore, for every maternal death it is claimed that at least five women are handicapped during delivery with permanent destructive injuries. At a recent conference, the Society of Gynaecology and Obstetrics proffered that 75,000 Nigerian women die annually in childbirth, for every one, 20 or 1.5 million are disabled due to childbirth.

The strengthening of MCH services was paramount and a major initiative was identification of and effective training of TBAs, as first point of contact for most rural women. A project jointly implemented by the FMOH and the Inter-African Committee (IAC). Family planning viewed as essential to improvement of maternal health and socio economic development. Annual growth rate estimated at 3.2%(Kuti, et al, 1990), is gradually coming down to current estimation at 2.9% (World Health Report, 1992).

A 1981-82 Fertility Survey suggests women's age at marriage for 15-49 age group was 16.3 years and 15.8 for women 20-24 years with an average of 6-7 children born to each woman at end of reproductive life. All of which culminated in the development of a national population policy in 1989, within which family planning was given prominent attention.

In recognition of the interrelationship between high fertility and maternal / child morbidity and mortality, it's acceptance as an effective preventive health measure is not surprising. The FMOH's objective was to have at least 10 health workers trained in provision of family planning services in each LGA. National PHC objectives being monitored was that by 1992 90% or more of new born would have a birth weight of 2500gr. or more; 90% of children 0-3 years would have a weight for age above the third percentile; 70% of deliveries would be attended by a health worker or a trained TBA; and 10% of women in reproductive age would use modern family planning.

This unit was responsible for provision of numerous health and preventive services to women and children, which include ante natal, peri and postnatal services; nutrition education to mothers; family planning services; training of TBAs and VHWs as well as monitoring and supervision of their work; liaise between the LGA and state/federal ministries of health, NGOs and international organisations.

Structure

Two of four designated MCH facilities were functioning in Bama LGA, however complementary services are provided by Bama general hospital and the Army Barracks clinic. There were 105 TBAs distributed 5 to each wards plus 11 VHWs. The Unit Co-ordinator was a Registered nurse/ midwife, a community health officer and the only trained family planning services provider in the LGA. In addition there were 2 principle nursing officers, 5 midwives three of which were away on training, 2 community health assistants and 14 community health attendants.

Data collection, reporting forms are said to be sufficiently supplied and there were sufficient files for holding reports. Book 4 LGA, contains forms 4 LGA 1 and 2 for monthly and annual records of family planning at the LGA. The Co-ordinator had a table and some chairs, paper or any other writing material required such as pencil and pen had to be bought by the officer. Typing was done commercially outside the department due to the lack of a typewriter.

There was no document on the objectives of the MIS and how it was meant to operate. No training was provided on how to organise and analyse data. The co-ordinator said albeit there was no written job description for her workers, they are however given basic training and orientation on what their responsibilities were. In her case, her responsibilities are determined by her qualifications.

Process

Data for the MCH Unit are based on records kept by TBAs on neonatal, infant and maternal deaths; prenatal and postnatal attendance; and number and type of family planning devices dispensed. These are forwarded to health facilities. Reports compiled at village and facility levels are submitted to the MCH/ FP unit where monthly and annual reports are collated and submitted to the M & E

Unit, while summary reports are sent to the IAC and the Ford Foundation, apparently these organisations provided support for the training of TBAs.

Outcome

Although this unit was provided with structured reporting forms by the FMOH as other units, obviously, an attempt was made to analyse data, based on which application for supply of unit requirements were made to the LGA Council. For example a report written by the Co-ordinator based on submissions from health facilities on quantity of family planning devices dispensed in 1992, was below expectation. Reasons for poor utilisation of services were identified and suggestions proffered to the LGA and donor agencies on how to improve services and increase responsiveness. Similarly, reports on MCH services are summarised, predicated on which a submission was forwarded to the LGA Council focusing on state of affairs in the LGA and what assistance was required to improve services.(6.7 -6.9).

Records are up to date and neatly organised in files, but only dates back to August 1992, although the unit was established in 1987. Again the Co-ordinator reported past records were not kept, what was available were reports compiled since arrival of the current co-ordinator. Clearly, the implementation of the MIS is having some effect on management of health records.

I asked her how accurate data on the reports shown to me were, She said,

"it is really impossible to tell, there have been many problems with the TBAs in the community, often forms are not submitted, many do not remit money realised from sales of drugs, record keeping is poor, we accept what is provided. Moreover I have not been able to carryout supervision this year due to lack of transport, this is why I wrote to the LGA Chairman, asking him to train more midwives and open some more maternity clinics.

There was no other established means of verifying accuracy of data submitted. Routine supervision had failed due to lack of transportation. Remittance of money derived from sales of drugs distributed was effective in monitoring certain aspects, for example the number and types of family planning devices dispensed. As the co-ordinator pointed out, many TBAs had not been remitting money, it was therefore difficult to use that as a monitoring device.

There was no formal means of sharing or exchange of information between the unit and others. The unit co-ordinator reported that departmental meeting had not been held for the year as at the period of this research.

Table 6.7: Summary of Family Planning Devices Dispensed in 1992

Device	Quantity
Femenal	nil
Lo - femenal	1,475
Microgynon	nil
Neogynon	nil
Other oral	nil
Depo- provera	60
Noristerat	77
Norplant	nil
Other implant	nil
Copper T	34
Foaming tab	1,606
Condoms	1,513
Tubal	nil
sterilisation	nil
Referrals	302
New acceptors	823
Revisits	

Source: Bama PHC Department Record on Returns of Family Planning Devices Dispensed from January - December 1992.

Table 6.8: Summary of MCH Ante natal Activity or 1992

Month	New Attendance	Re-Attendance
January	220	321
February	178	330
March	207	409
April	228	405
May	203	365
June	220	310
July	238	484
August	141	264
September	209	570
October	314	624
November	201	874
December	311	901
Total Attendance	2,670	5,857

Source: Bama PHC Record on MCH Services January-December 1992.

Table 6.9: Summary of TBAs' Services from August to December 1992

Service	Frequency
Ante natal	380
Delivery	490
Neonatal Tetanus	52
Infant Death	16
Still Birth	23
Maternal Death	7
Referrals	220

Source: Bama PHC Department Record on TBA Services 1992

6.3.4: Essential Drugs Unit

Background

A major constraint hindering health care effectiveness particularly at the PHC level was shortage of essential drugs both in quality and quantity, this led to continued self medication, utilisation of traditional services and quacks. In addition adulterated and fake drugs flooded the market and permeated all levels of the health system, leaving rural communities with less education and limited alternatives at greater risk, while higher prices are paid for drugs.

A situation that was attributed to major cutbacks in public expenditure on health due to decline in oil revenues and value of local currency; general inefficiencies in the distribution and utilisation of drugs, compounded by inappropriate selection, procurement and storage mechanisms; a belief of the right to free drugs by the majority of the population, perpetuated by promises made by politicians regarding availability of free health services (FMOH, 1988).

To strengthen drug supply, ensure quality of available drugs, and sufficient supply of safe, effective and affordable drugs for all at reasonable cost, the Federal Government established a national essential drugs programme. In 1985 the first essential drugs list was published, with revisions since then. The first list contained 420 generic drugs, of which 40 were for use at the PHC level and 10 for the VHW level. In addition the Drug Revolving Fund (DRF) scheme was introduced.

Under the scheme, drugs are purchased at the most cost efficient price, usually through bulk purchasing and sold to consumers at lowest cost. Revenue from drugs sale is used to replenish supply, therefore leading to a self financing scheme where effectively implemented. In 1989 seed money of 100,000 naira was given to each LGA by the Federal Government to assist in effecting the scheme. While the DRF scheme has been successful in some states/LGAs, others have encountered problems, with decapitalization a major constraint.

Under the national PHC objectives for monitoring, by 1992 80% VHWs and health facilities would have 80% essential drugs available continuously.

The essential drugs and equipment unit in Bama established August 1989 is responsible for the procurement and distribution of essential drugs to VHWs and health facilities in the LGA; assure effective execution of the DRF scheme; and monitors storage of drugs and maintenance of equipment in health facilities.

Structure

The unit is relatively small, staffed by a community health supervisor, with a diploma in health services administration. TBAs and VHWs, within the community, while health officers, assistants, attendants and health aids at the dispensaries and clinics dispense and sell drugs. In the MCH clinics, drugs are dispensed by nurses/midwives were available otherwise community health workers are responsible.

Unlike other units, there was structured proforma from the FMOH for data collection. A form designed by the unit co-ordinator known as "Stock Balance Sheet of DRFs" was completed and submitted quarterly by health facilities with record of available drugs, quantity and estimated cost of drugs, quantity/cost of expired drugs. All health facilities visited were involved in the DRF Scheme (10), all had the stock balance sheet (10),cash book (6), inventory list (10), receipt book (6) sufficient drugs (4) (figure 6.4). The list of essential drugs and prices was available. Most importantly, there was no sepatrate bank account for the scheme, this according to the DRF Officer constrained the purchase of drugs, which was at discretion of political administrators.

Although there was only one officer directly responsible for managing the DRF scheme, indirectly all health facility officers and the drug store officer contributed to generate information for the unit. However, the officer conceded

the lack of written job description, had no document on the MIS, its objectives or procedures. Had heard about the M&E Manual, had looked at it but thought it was rather too complicated. He had no training on the MIS, did not understand contribution that could be made by the essential drugs unit.

There was no established filing system, officer complained about the lack of writing material. There was no blank sheet of paper, there was one file jacket which contained papers meant to be submissions from health facilities. There was a table and a chair, no type wrter or calculator.

Process

Data collection and processing begin at the village and facility levels were records are kept on the quantity of drugs received from the headquarters, quantity sold, quantity and quality of available drugs, inventory and condition of equipment and amount of money generated from sale of drugs. Reports are submitted to the DRF Co-ordinator, from which periodic reports of the amount of money generated by the DRF are submitted to the PHC Co-ordinator and then to the LGA Council, responsible for the DRF and PHC budget. No report was submitted to the M&E unit or the State PHC Department.

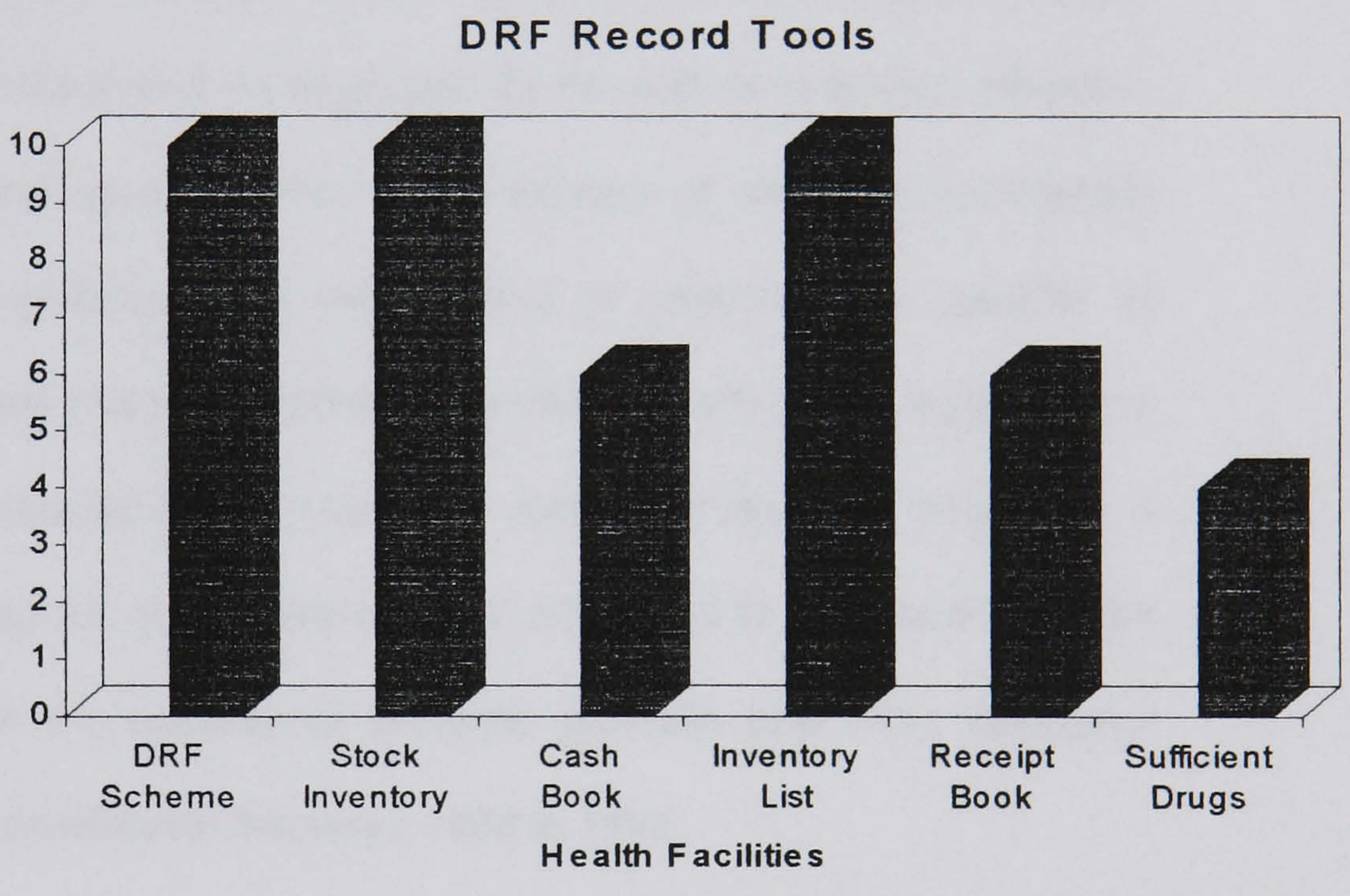
Records at the office of the unit co-ordinator were disorganised and records of amount of money paid by workers in the field were kept on pieces of papers, that on cursory glance would only be taken as scraps.

Outcome

The Unit Co-ordinator stated that data collected was not put to any other use apart from the periodic reports presented to the LGA Council, on which requests for the purchase of drugs are made, the main concern was ensuring sustenance of the DRF scheme and continued availability of essential drugs.

Money generated from drugs are remitted to the unit co-ordinator and receipt issued. To replenish drugs, health facilities would account for those supplied. Total amount realised from drugs since the establishment of DRF in the LGA in 1989 varied, sum of 249,657 naira was collected from August 1989 - April 1993.(figure 6.5). Similar to other units, previous records were not maintained.

Figure 6.4



Record of drugs purchased over period, suggest the two most commonly purchased drugs were chloroquin and penicillin. The use of and efficacy of drugs is not part of the reporting system, there is therefore no correlation between drug use, incidence and prevalence of diseases. Hence the reporting system was basically concerned with procurement and sale of drugs, each health facility officer reported on quantity of drugs sold and as long as long as expected amount of money was remitted, there was no system of determining whether drugs were actually used to treat patients or sold to other agents.

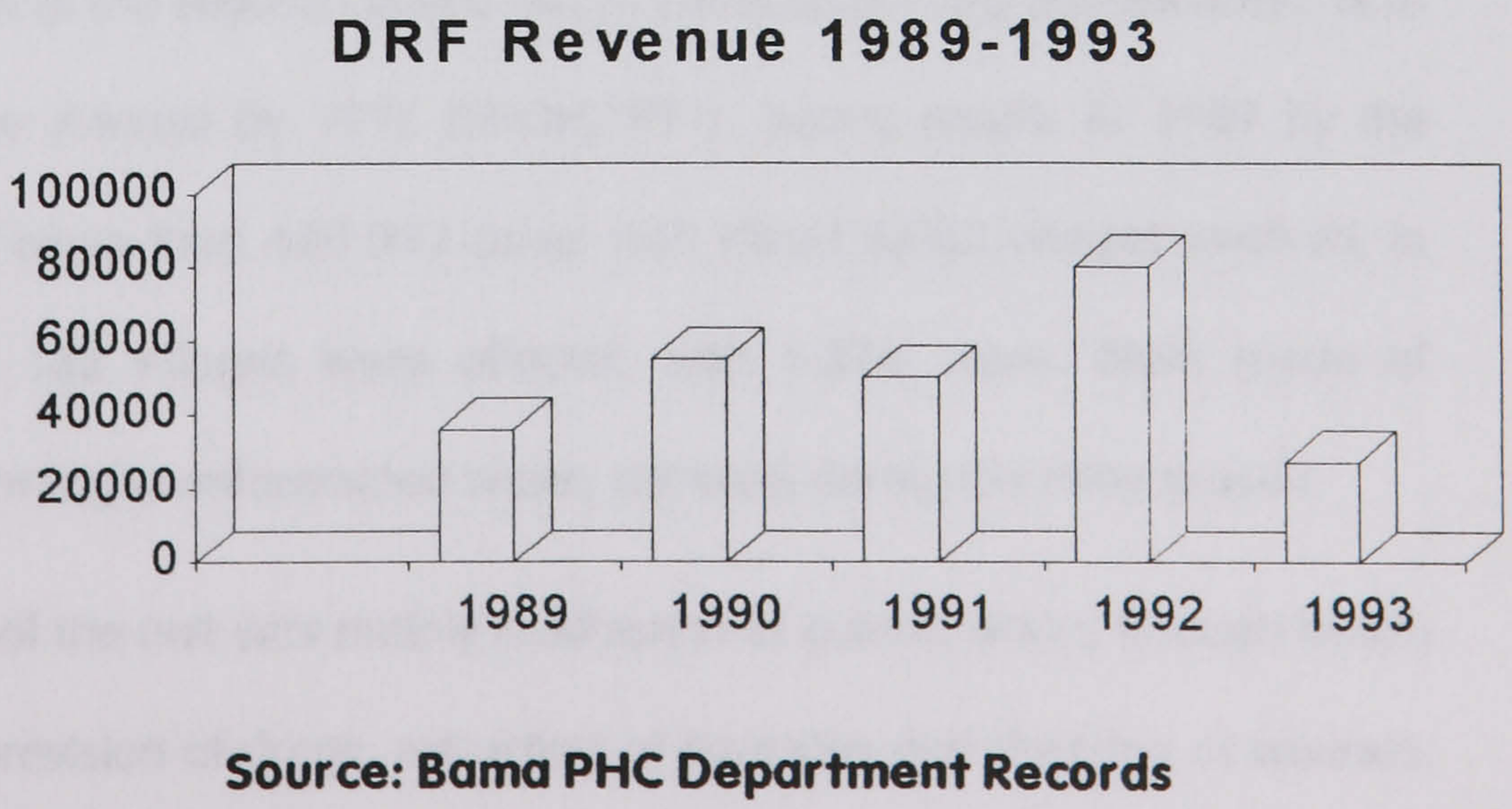
These drugs are purchased by government and sold to patients at highly subsidised rates in contrast to previous practice when drugs were free.

The coordinator stated that he did not discuss outcome of data collected with other unit coordinators, and his discussion with the drug store officer was limited to the quantity of drugs dispensed and available, and those that had expired.

Intervention

While it was easy to understand the high purchase of chloroquin being a malarial endemic region and as suggested by the unit co-ordinator. However, no explanation was given for the high purchase of antibiotics particularly penicillin. The co-ordinator and me decided to ascertain the quantity of antibiotics dispensed and what diseases were treated with procaine penicillin in particular since it seemed more money was spent on it than any other drug. A tool was developed for data collection and distributed to PHC facilities. Data was requested on the quantity of procaine penicillin and other antibiotics supplied to health facilities for five years 1988 to 1992.

Figure 6.5: Revenue from DRF



Source: Bama PHC Department Records

Apart from my personal concern, this case was used to demonstrate to managers at the workshop how routine activities and data generated could trigger questions requiring further investigation by either facility officers or unit co-ordinators. Further discussion in chapter seven. My concern borders on the far reaching implications of indiscriminate use of antibiotics, particularly by health workers with very minimal education. Arguably, it could be said that my bias as a western trained health practitioner is affecting my judgement.

While the potential effect of my training is appreciated, there is however no denying that in any context antibiotics particularly, penicillin must be used conservatively and monitored carefully due to possibility of bacterial resistance. Perhaps this is an area that warrant another study. It would be necessary to determine for example how often the same group of patients visit health facility with the same problem treated with perhaps the same antibiotic.

6.3.5: Guinea Worm Control Unit

Background

Guinea worm or (Dracunculiasis), a debilitating disease with serious consequences. In 1988 the Federal Ministry of Health established a secretariat to co-ordinate eradication of this disease which had affected every state in the country. Goal of the Nigeria Guinea Worm Eradication Programme(NIGEP), is to eradicate the disease by 1995 (FMOH,1991). Survey results in 1989 by the FMOH show more than 640,000 cases with about 6,000 villages involved, in Borno state 162 villages were affected with 9,374 cases. Main mode of infection is through contaminated water, common during the rainy season.

Function of the unit was mainly eradication of guinea worm, through health education, provision of drugs, extraction of parasites and dressing of wounds. 8,000 linen water filters were distributed since inception of the programme.

According to report kept by Bama PHC department, twenty villages are affected, with a total of 1,335 recorded cases from June 1991 when proper record keeping was established (table,6.10).

Structure

This was a relatively small unit run by two officers, one community health assistant as co-ordinator, assisted by a public health superintendent. Services of the unit in the community are provided by 18 VHWs distributed in affected areas of the LGA. Village health workers are trained to provide preventive education, administration of antibiotics, cleaning and dressing of wounds.

Linen filters and drugs are provided by the State Guinea Worm Eradication Unit. Bicycles are provided but not sufficient according to the co-ordinator. Motorcycles were promised by the Federal Ministry of Health but had not been supplied. Booklets provided by central level are used for recording cases and treatment provided by VHWs. The only source of data is the Monthly Guinea Worm Surveillance and Reporting Handbook. Regarding the M&E manual, he had seen it in the PHC Co-ordinator's office but had not read it, objectives of the MIS, procedures and guidelines were not available. There was no understanding of input required from the unit.

Process

New cases of Guinea Worm and intervention instituted are recorded in the Surveillance Book, from which figures are obtained by the co-ordinator to compile reports on affected individuals in the community. Monthly Surveillance Summary, is forwarded to the State Guinea Worm Co-ordinator. Currently, however, booklets are completed by VHWs mainly on the number of new cases in the community and the nature of intervention instituted.

Outcome

The Co-ordinator reported that prior to June 1991, no record was kept on number of those infected, treatment and drug utilisation, albeit booklets were left with VHWs for recording such activities. According to him, VHWs claimed forms were routinely completed and submitted to the co-ordinator but no record of such submissions were kept or recorded at the PHC department. Completed forms are submitted to the State Guinea Worm Eradication Office. No report was submitted to the M&E unit.

The coordinator indicated, monitoring activities of the VHWs as well as ensuring proper completion of forms was based on routine supervision, which had been difficult due to lack of transportation and fuel scarcity. Figures submitted are not verified but taken as given. Distribution and return of forms was facilitated by bicycles provided to VHWs by the Federal Guinea Worm Erradication Office. There was no established process of monitoring administration of antibiotics by health workers.

However, the Coordinator reported that programme had been very successful and communities were pleased. Despite this expressed satisfaction of communities, my request to interview affected individuals and health workers was discouraged, on the grounds that there had been no serious rain, the chances of finding a case was slim.

Arguably, if guinea worm completes its cycle in a year in the body before emerging through the extremities, I presumed there would always be cases undergoing treatment until the cycle was completely eradicated. I equally thought that development of sores, extraction of parasites and treatment of wound would depend on when infection occurred and not necessarily the season of the year, hence a continuos activity, until such a time that guinea worm was completely eradicated. For example those infested in August 1992

would present sore from August to September, 1993. These are only speculations.

Table 6.10:Rreported New Cases of Guinea Worm in 1992

Month	Frequency	Month	Frequency
January	63	July	93
February	10	August	218
March	2	September	125
April	0	October	87
May	2	November	28
June	83	December	10

Source: Guinea worm unit, Bama PHC Department

6.3.6: Monitoring and Evaluation Unit

Background

The monitoring and evaluation of PHC programmes was recognised as essential to effective implementation of PHC, thus establishment of a monitoring and evaluation department at the central level and subsequently at community level. With launching of PHC in 1987 national objectives and indicators to measure progress in their attainment were developed. Each LGA was required to set up an M&E unit for routine data collection, analysis and use of information for evaluation of PHC activities as well as sending feedback to communities generating data, state and central levels. The Bama M&E Unit was created in 1990.

Responsibilities of the unit includes organising, collating, scrutinising and summarising, monthly, quarterly and annual submissions on PHC activities within the M&E framework; distribute forms to health facilities; supervise data

collection in the LGA; identify problems and proffer solutions in relation to effective completion and submission of M&E forms; analyse data and present graphic display of monthly summaries; submit summarised reports to state, federal M&E departments; and receive feedback from higher levels, combined with analysis of local situation send feedback to community data collectors. (FMOH, 1992).

Similarly, according to the Federal Ministry of Health, information derived would help health facility supervisors, unit managers, PHC co-ordinator in understanding health problems and health needs of the people, assist in the determination of health resource utilisation and needs; provide information for planning, decision making and management at the grassroots.

Structure

The Unit Co-ordinator, who took up responsibility in 1992 was the only officer assigned to the unit. He is a Registered Nurse, qualified community health officer, with 16 years of experience as a health worker, during which he worked in varying capacities. His last appointment was as an Assistant Chief Nursing Office at a General Hospital. When asked how he was appointed as the M&E Co-ordinator. He said,

" It was part of routine transfer, on arrival to the LGA, I was assigned to this post". He had no previous knowledge of the job since he had always worked in the hospital.

Training as the M&E Co-ordinator involved participation in a two day workshop on how to complete M&E forms in June 1992, organised by the FMOH. He suggested that more training was certainly required for him to be able to carry out his responsibilitites effectively, which he said included distribution of forms to health facilities; supervision, collection and organising of reports; and submission of reports to the State M&E Office.

There was however, no written job description and there was no M&E manaual in his office. He acknowledged existence of a manual in the PHC Co-ordinator's office, had not had the time to read. Even within the MIS, there was no explicit guidelines, objectives or procedures, except perhaps what was in the manual.

The M&E Unit was limited to an office shared with another officer, one large table and three chairs. According to the co-ordinator, sufficient forms were regularly supplied by the federal ministry of health. There were sufficient file jackets for holding submitted reports. All files were stalked up on his table, there was no filing cabinet, no typewriter or any form of reproduction equipment, not a simple hand calculator, no poster boards, paper was scarce according to the co-ordinator.

No means of transportation was assigned to the unit, distribution and collection of forms were hampered, and supervision of health facility officers was greatly affected. He said, to effect the data collection process, all health facility officers were told data were required by the federal ministry and instructed on how to complete forms, and when they were to be submitted, that was the extent of training provided. No health facility officer was given the M&E manual or exposed to its content. This validates findings at health facility level.

Process

The M&E Co-ordinator said he relied on health facility officer, who came to Bama for salaries, for distribution and collection of forms, due to difficulty in obtaining transportation, consequently forms are often late. In addition, he thought there were too many forms, for health facility officer to complete.

" These officers are very busy, it is hard for them and they are always complaining, because they spend so many hours completeing forms. But we ask them to do it otherwise they will not collect their salaries".

As at the time of this study, there had been no supervision of workers for 1993, which would have occured at least monthly. He reiterated purpose of supervision was to ensure that forms were properly completed and to assist officers who had problems; monitor accuracy of data submitted; and to provide training where needed.

Reports for 1992 from health facilities were available and organised in several files, on the table and the floor. I asked him want he did with forms, he said they were forwarded to the state office. In terms of accuracy, he said, it was not possible to check every form submitted for accuracy there were far too many forms.

"I am not at the health facility, there is no way to tell. I look at some of the forms, anthing unusual is brought to the attention of the responsible unit co-ordinator. It is not easy, I am not even sure of what I am supposed to be doing."

Outcome

During my last formal meeting with the unit co-ordinator in August 1993, reports collected for 1992 and 1993 were in his office and had not been forwarded to the State M&E Department. There was no summary of monthly and annual submissions, no analysis or graphic presentation.

Later at the state level I found out that Bama LGA was one of those that had not submitted any report since introduction of the MIS. This was confirmed again at federal level, where I was informed by officers at the NPHCDA, that during a nationwide supervision of the LGA in August 1993, the Bama M&E Officer informed them that he was not aware he had to submit forms to the state M&E Department.

During our interview, the lack of training and inadequate appreciation of what was required and how to carry it out, was unequivocally stated as problems mitigating against the management information system at the LGA

level. This is superimposed on a system of report submission weakened by the lack of transportation, resulting in delays in report submission from health facilities to the PHC headquarters, which also impinges on supervisory capacity of the M&E unit, distribution of forms and dissemination of information.

Number of supervisory visits per year to the health facilities is very much dependent on availability of transport. However, whenever possible one or two unit co-ordinators would make general supervisory visits to health facilities, this, naturally makes careful scrutiny impossible. Similarly, health facilities visited expressed lack of feedback from the M&E unit on data collected, feedback was limited to reminder to submit reports. Similarly, assessing accuracy of data submitted was not practicable. The M&E unit in Bama presently serves the purpose of data compilation and storage.

6.3.7: Office of the PHC Co-ordinator

Background

The Co-ordinator has the responsibilility for effective implementation of PHC programmes in the LGA; facilitates the seting up of various health committees; represents the LGA on health matters at state level and with international organisations; promotes intersectoral collaboration and facilitate community participation; mobilises resources; and ensures effective and efficient utilisation of resources.

An LGA PHC Co-ordinator as stipulated by the Minister for health could be a medical officer, an experienced community health officer (CHO), rural superintendent or public health nurse. The officer must have attended relevant training workshops, project, implementation workshop, the monitoring and evaluation workshop and that on training of trainers of VHWs(Ransome -Kuti,

1991). It is amajor responsibility, that requires experience and skills in health care and leadership.

Structure

The Bama PHC Co-ordinator is a son of Bama, his appointment to the position was due to many years of experience as a health worker and as informed by other members of the department, was greatly due to his background as a senior and respected member of the community than to his management experience or qualifications. According to him, he had a primary school certificate, had been a health worker for 25 years, of which 16 were as head of department. He started his career from the lowest level as a health attendant, later received rural health superintendent and community health officers training.

He had no management training but attended the workshop organised by the federal ministry of health on the MIS in 1992. He had the only copy of the M&E Manual, which he told me he hadn't read but had looked at. According to him, he had knowledge of his schedule of duty, was answerable to the LGA Chairman, who approves all job appointments, promotion, transfer and dismissal.

The co-ordinator reported a total staff strength of 157, for PHC activities in an LGA with an estimated population of 195,254. This comprises 3 community health officers of which he was one, 3 senior community health superintendents; 4 nurse/midwives, and 3 nurses, four of which were attending a course; 14 senior community health extension workers; 5 public health superintendents; 3 public health assistants; 11 VHWs; 105 TBAs; 7 leprosy attendants; 18 male attendants; 31 female attendants. Obviously majority of workers are unskilled.

In addition to these workers, other resources include one ambulance, one station wagon and a saloon car. The ambulance was not road worthy and rarely used. The Peugeot saloon was used exclusively by the co-ordinator for official and personal purposes, there was one driver for the department. By implication the station wagon, which also served the needs of the entire department cannot be used by other officers whenever the driver was serving the Co-ordinator. There was a tipper lorry for evacuation of refuse in the LGA, particularly on sanitation days. Every last Saturday of the month was designated national sanitation day, while every fortnight was state sanitation. There was one filing cabinet in the co-ordinator's office, table and chairs and a telephone. There was no typewriter or any form of data processing equipment.

Interview

By the time of this interview in July, I had a broad understanding of the operations of the department. Moreover, the Co-ordinator I met regularly since at the beginning and at the end of each week and whenever there was a need for it. The interview was at the office of the co-ordinator, and was prearranged a week earlier. Notes were taken and transcribed. Confidentiality of some information was assured but the use of use of pseudonym may not help very much in this case since he was the only PHC Co-ordinator in Bama. Consequently highly sensitive information cannot be included in this document.

His general impression was that PHC had deteriorated since devolution to the LGA, major programme decisions are made by politicians at the LGA Council, with little input from the PHC department. In terms of Structure, he said,

"health facilities new and old are ill equipped, drugs are scarce and there is often reluctance to train and employ additional personnel required for PHC services. They are only (politicians) interested in building new clinics that are neither equipped nor used. For example there are 5 dispensaries, 1 dressing

station, 2 health clinics built since early 1992 and 1993, which are still empty. It is often difficult to obtain money for basic materials such as paper, pen, pencils etc. and major equipment are purchased by the LGA Council without consultation. We have been asking for more workers but no one listens to us. Drugs are scarce and equipment are not provided since since December 1992".

His opinion was that transportation had always been a problem which was aggravated by petrol scarcity. He went on to explain that there were two cars in the department and a very old ambulance, as observed earlier. One car was for his personal use and the other for general departmental use, two tipper lorries for evacuation of refuse, one apparently was under repairs. He said,

"when the information system was introduced, bicycles, motorcycles and a car were promised by the FMOH in order to facilitate supervision, distribution and collection of forms, but none was provided. It is sometimes impossible for unit co-ordinators to carry out one supervisory visits in a year. Often out station officers submit forms whenever possible, most wait until end of the month they come to collect salaries". He pointed out that my visits to the communities would have been difficult without the help of the LGA Council in providing transportaion. This was very true since even when there was a vehicle, there would be no petrol.

The PHC Co-ordinator thought the MIS, was a good innovation and the FMOH was trying its best but ther were serious problems. For example, he did not think health officers had enough training on what was to be done. Furthermore there were too many forms and some too complicated for their level of education, it is therefore difficult to tell whether they were doing the right things.

"Officers from the State or Federal Ministries had not been seen since they came to introduce reporting forms, workers are completing them and the M&E

officer had been submitting them to the state PHC office and no feedback had been received".

Then I asked him how he ensured that forms were completed at all and accurately, since forms were complicated and adequate training was not provided. To this, he assured me that they were being completed well. Furthermore, it was the duty of the M&E officer to ensure that forms were completed well and if there was any problem he hadn't been informed. He continued by saying that PHC staff were overburdened with too much work, there were very few trained staff in the LGA to provide health care services and all efforts to get more staff had failed.

He was however, skeptical of sustainability of the MIS under proposed transfer of provision of forms to the LGA without effective corresponding financial arrangement.

Discussion

This interview culminated in the PHC co-ordinator and me agreeing some fundamental problems, since I wanted him to have an appreciation of some of what would be presented in this report. These include: general lack of appreciation of the information system by health workers involved in data collection; data collected was not being of much use to the LGA; lack of knowledge on how to transform data collected into usable information; the need to train workers; the need for more resources; and the need for feedback and more input from central level.

The Co-ordinator with expressed limited training in management, planning and information processing tends to concentrate his efforts on routine administrative work. There was actually no formal channel of receiving information on health activities from the various units. Departmental meetings

are rare, one was held prior to my visit in 1993 to inform staff of planned visit of the SMOH.

Problems outside routine administrative matters are addressed as they occur. The capacity to plan and co-ordinate health activities, analyse and use information for planning and decision making is weak. A situation compounded by the lack of basic working material. These factors put together perhaps explain why health workers were always sitting outside in small groups, senior and junior workers alike. My arrival at the department was usually between 8-9 am, more often than not workers were already outside, inclusive of those with no office at all. So I posed an innocuous question, to the officer, whether it was because people did not like their offices. Two reasons were proffered, there was not much work to be done and the weather was too hot.

The LGA PHC Management Committee

The Committee is part of the PHC management information system, being the highest level of participation at community level(beginning with village and district). The committee is responsible for ensuring effective implementation of PHC in the LGA; a forum for examining health matters and information derived at village and district levels; facilitates joint solution of problems arrived at by administrators, health officers and community leaders.

Membership should comprise Secretary to the LGA as chairman, PHC Co-ordinator as secretary, Head of Works and Housing Department, all district heads, religious leaders, relevant voluntary organisations and selected PHC supervisors. But the committee was not established. District heads pass information directly to chairman or secretary to LGA bypassing the PHC co-ordinator, who then receives information from the LGA Headquarters, if any at all. There was no forum to openly discuss health needs of the community.

It is the responsibility of the PHC Co-ordinator to facilitate organisation of the committee. So I asked the co-ordinator why the committee had not convened?

"it is political". He went on to reiterate misgivings about the role of politicians in the PHC programmes. He indicated that politicians hadn't wanted it established. Perhaps its establishment might have been source of challenge for them, a forum for local leaders to question how health resources were utilised.

Intervention

After this review we agreed a one day workshop for the PHC Co-ordinator, the six unit co-ordinators, all officers in charge of PHC health facilities, the State Zonal PHC Co-ordinator and other officers involved with information gathering, (see appendix for attendance list. As mentioned earlier under DRF, data collected on the use of antibiotics was used as a case to illustrate how routine data could provide information on potentially serious situation and trigger the need for more information that would provide better appreciation of the problem, facilitate management decision and improve health services. This was quite relevant and proved practical since data was provided by health facility supervisors. Basic organisation, graphic presentation and analysis of data were demonstrated.

Realistically, time, resource, are constraints that impeded any meaningful and result oriented intervention that could have been initiated, which would require further careful planning and resource mobilisation. There was limited time and the political climate was not expedient. For effective intervention other levels of the PHC management information system must be examined, interrelated problems identified and addressed which would perhaps facilitate the solution of local problems. Furthermore, since the information system was designed, implemented and to some extent controlled centrally, with intervening factors from the various levels of the PHC system and outside the

organisation, solutions would clearly be addressed from a broad perspective, involving health workers and the community in general. This perhaps could be one way of addressing problems with local politicians at local level identified in this study.

Integration of Related Departments in the Bama PHC MIS

Apart from Bama PHC department there are related units operating within the community, involved in provision of varying PHC services, gather data and keep records. I decided to find out what types of services were provided, data collected, utilisation of data and possibly the integration of data with the PHC departments. Related departments include the State Zonal PHC Office, the State Zonal Environmental and Sanitation Office, the University of Maiduguri Teaching Hospital (UMTH), Comprehensive Health Centre.

The State Zonal PHC Office

The Zonal Office was created to ensure effective implementation of PHC programmes, provide technical support and collect relevant information from the zone. The Zonal Office for Bama, Gwoza and Askira/Uba was located in Bama Town. Discussions with the Zonal Officer and Assistant Zonal Officer, confirmed by the PHC Co-ordinator, suggest there had been little interaction between the two departments. The Zonal Officer indicated that attempts to communicate with the PHC Department was futile. The PHC Co-ordinator however, said during our interview that the zonal office was usually contacted when the need arose. Further discussion in chapter seven, seem to suggest that rivalry and perhaps protection of personal interest on the part of the Bama PHC Co-ordinator are possible contributory factors.

The State Zonal Environmental and Sanitation Office

The Zonal Environmental Office responsible for Bama, Gwoza and Askira/Uba was located in Bama Town. The office had the following functions: collection and disposal of refuse including human waste; cleaning and

maintenance of streets and township drains; sanitary inspection of houses, abattoirs, food premises, markets; control of industrial, air and water pollution; control of insects, vermin and arthropods such as flies, mosquitoes grasshoppers; burial of unclaimed corpse; and installation of refuse collection devices in the town.

Functions of this department and those of the PHC water and sanitation unit are similar. There was however no formal network of communication or exchange of information between the two. Officer in charge of this department stated during an interview that all efforts to establish communication with the PHC department failed, he did not understand why.

Consequently, data collected and information on services provided were not integrated with those of the PHC department, activities of the two department were neither planned jointly nor conducted in complement. Each unit functioned in exclusion of the other, with duplication and a seemingly high degree of rivalry between officers involved. For example during a house inspection, officers of the PHC department pointed to other workers in the community as officers of the state sanitation department and said to me,

" look at them, today they are again working in our area".

It was also suggested that in some instances the same houses were inspected by both sets of workers. There were suggestions that the two co-ordinators had constant disagreements which seem to affect relationships among junior workers in both departments. A health worker who would not be mentioned said,

" my co-ordinator is not happy because the zonal sanitation co-ordinator is liked and always praised by our leaders, he works very hard and they are happy with him, I also think it has something to do with money but we are not sure".

Consequently, reports and data produced at the two units were not harmonised and had completely separate reporting systems. On the other hand

I was informed by another PHC officer confirmed by both co-ordinators, that equipment were often loaned out to the Zonal Office, for services in the community particularly on sanitation days.

The Comprehensive Health Centre

Background

The University of Maiduguri Teaching Hospital (UMTH), Comprehensive Health Centre in Bama was opened in 1991, located 55 kilometres from Bama town at the border between Nigeria and the Cameroon Republic. In chapter five reasons for establishing comprehensive health centres and the pairing of LGAs with a medical college and teaching hospital were discussed. To reiterate, this step was taken to facilitate training of medical students; and to enhance relationships between tertiary level of health and the community.

Albeit the Centre is in Bama it was however, staffed and run by the teaching hospital as an independent institution. It had 25 beds, provided preventive and maternal and child services, which include immunisation, family planning, ante natal, perinatal and post natal services, home visits in addition to minor curative services. Any member of the community could receive treatment at the centre.

Structure

The responsible health officer reported there were 1 community health officer being him, 12 nurses, 1 public health officer, 1.5 pharmacists, 2 laboratory technicians, 6 medical record officers and one medical officer with the overall responsibility of managing the institution. An incredibly large number of trained staff relative to those of the entire PHC Department.

The medical records room had shelves, files were organised in alphabetical order, there were calculators, rulers, papers, poster boards, typewriter. Prepared reports presented were organised according to disease, age, sex for each year and summary of activities graphically displayed on the wall.

The record officer was able to present record of services provided by the centre as far back as 1986, when it was first opened and operating in Konduga LGA. The officer seemed quite knowledgeable and said he had training in medical records keeping and statistics, other officers assigned to the unit were equally trained. Funding was provided directly from central level, management was by the teaching hospital.

The officer reported in terms of data collection, the centre had no relationship with Bama PHC. There was no exchange of information nor integration of data. Both the officer in charge and the medical record officer were aware of the existence of the PHC Manual but there was none at the centre. However, there were two texts on the International Classification of Diseases. The medical record officer was aware of the M&E Unit in Bama but had never submitted any report to the unit.

Process

Obviously, more resources were available to the centre for data collection and processing in comparison to Bama PHC M&E. The medical record officer explained that data collected on services provided within and outside the health facility were organised on the basis of the International Disease Classification, with age and sex specific groupings. Another set of forms were completed for PHC services, including immunisation of children, maternal health services and family planning. Monthly reports are sent to the officer responsible for the centre, Head of Community Medicine Department, with overall management onus and the State Epidemiological Statistic Unit.

According to the responsible officer, reports provided broad picture of diseases treated, deaths, births and family planning services.rendered to the community. However, he suggested that most use of information derived was carried out at the teaching hospital by Professor Mausa,(pseudonym), Head of Community Medicine to whom monthly reports were submitted.

Interview with Prof Mausa

To understand how data collected at the Comprehensive Centre were utilised, considering the immense resources provided compared to those available at the LGA PHC Department, I therefore had an interview with Prof. Mausa (pseudonym), Head Department of Community Medicine and In charge of the centre. Reports from the centre were submitted to him as suggested earlier, and as an academic, a researcher and a medical practitioner he would perhaps have more appreciation of what happened to data and information generated by the centre.

My interview with the Professor took place in his office at the Department of Community Medicine, University of Maiduguri Teaching Hospital. The interview was quite illuminating. He said,

"the centre has no relationship with the LGA PHC department, the PHC Co-ordinator and myself normally meet at the Bama PHC Management Board meeting, the last meeting was in early 1992".

This Board was supposed to meet at least twice annually, he was able to communicate regularly with the PHC Co-ordinator on issues relating to the posting of medical students to Bama for field experience during these meetings. He confirmed reports were sent to him monthly from the centre, but on second thought, realised it was a long time since he received report.

What did you normally do with reports?

" I usually examine them but I hadn't had the time to do anything with them and I cant remember what I did with those reports, I wanted to show them to you. Maybe Dr. Ali (pseudonym), has them, he is the young Dr. posted to oversee the centre. You need to have a chat with him."

Are data collected by the Centre integrated with those of Bama PHC?

" Know, I don't see why they should, these are two different systems but I think we do send reports to the State Statistics Office at the Epidemiologic Unit. Have you talked to them yet? ".

Discussion then drifted to issues related to achievement of the department in training medical officers in the community. He was thanked for his time and I went off to seek out Dr. Ali.

Interview with Dr. Ali

My interview with DR. Ali was very brief, he informed me that he was trying to finish his course and had not yet taken up responsibility for the centre and did not know much about the information system nor reports submitted.

My next attempt was the State Epidemiological Unit as indicated by the officer at the centre and suggested by Prof. Mausa.

State Statistics Office of the Epidemiological Unit

I was told few reports were submitted by the Comprehensive Health Centre and had not been regular. The few available copies were presented to me.

This is perhaps a clear demonstration of how quality structure does not necessarily assure quality process or outcome. Health officers responsible for data gathering, organisation and storage are well trained and seem to carry out responsibilities effectively, necessary materials are provided. Highly trained academics and researchers are involved in the system, however data collected and submitted were not utilised and there was no integration of data with those of the PHC Department. This is perhaps an indication that factors impeding the information system are multifaceted and even transcend organisational level and may not be wholly due to resource scarcity.

6.5: The PHC MIS at State Level

Background

Earlier relationship between the three levels of health care federal, state and local government, contribution of each in the implementation of PHC varies in nature and scope as discussed in chapter one. The LGAs have the greatest responsibility of actually effecting policies, programmes and providing services to the people. The federal level is more concerned with policy development, planning, research, general co-ordination and mobilisation of resources, while the state concentrates on provision of technical support and supervision. This division of labour was fully effected with devolution of responsibilities to the LGAs in 1991.

The State M&E Department reviews submissions from all LGAs in the state within the PHC management information system. It is the responsibility of the State PHC Department M&E Co-ordinator to supervise activities of the MIS at the LGA level and provide technical support; scrutinise reports for inaccuracies incompleteness or indication of any untoward changes in the health indicators requiring investigation; prepare summary reports which are submitted to the federal M&E department. The state M&E department responsible for MIS and handling of data from the LGAs was set up in 1991

Structure

A two day workshop was organised by the NPHCDA in June 1992 to introduce the new reporting system and to train M&E officers from the LGAs. According to M&E officers, this was the only training he received. There were three officers, an Assistant Chief Health Officer, had training in public health, community health and had been in service as a health officer for 18 years. Others are two community health officers.

There was no vehicle attached to the M&E office, there was no data processing equipment, a type writer and a typist were shared with three other departments. There was a filing cabinet, table and chairs. The officer reported availability of sufficient paper, file jackets and summary forms. There was a copy of the M&E manual, the officer conceded looking at it a few times.

While he appreciated his responsibilities there was however, no written job description for his position as an M&E Co-ordinator. He pointed out that there probably was a written document but he hadn't seen it.

Process

Reports submitted by the LGAs were not in the M&E Office but in the State Epidemiological Statistics Office, responsible for compiling data from secondary and tertiary institutions. I asked the M&E Officer why PHC reports were not compiled by his office. He said,

"these boys are used to it so I asked them to help, more over we have received only a few submissions from the LGAs".

Why are submissions so few ?

"I don't know, I have not been able to visit the LGAs this year, there is no vehicle, last year I joined the EPI department but they have been very busy this year plus the fuel shortage, it has not been possible".

He said when there was enough reports he would ask the statistics officers to forward them to the federal level along with their reports. He did not know what else could be done with the information collected. In terms of assessing accuracy of data submitted, he had asked the statistics officers to examine each submission for any unusual figures and report such findings to him. Compiled reports are forwarded quarterly to the NPHCDA Zonal Office in the PHC health zone and the NPHCDA M&E Division.

Outcome

There was nothing in the office of the co-ordinator to show that data processing took place, submitted reports were at the Statistics Office of the Epidemiological Department. Here a file was brought out containing few reports from the LGAs for 1992-1993, responses were very poor. Only 7 of the 21 LGAs had made at least one submission for 1992, 1 made five submissions, 4 submitted 3 reports, 1 had 2 reports, 1 LGA had 1 report and 14 had submitted no report, there was equally no submission at the time of my visit for 1993 (figure 7).Bama was one of the LGAs that had made no submission for 1992 or 1993. There had been no submission from state to central since introduction of the new reporting system, nor had there been feedback to the LGAs since submission of reports was poor. Similarly, no formal feedback was received from the NPHCDA by the state.

The State M&E Co-ordinator expressed doubt on sustainability of the MIS, unless measures were taken to mitigate existing problems, which again include: lack of understanding of the MIS process and its implementation; political and bureaucratic factors impinging on supply of essential resources. He feared that current proposal to transfer supply of forms to the LGA Council had the potential of putting the process in abeyance, only few LGAs would be willing to invest on such project even on trial basis.

Interview with the State PHC Director

The state PHC Director believed that the problem transcends the information management system and affects the PHC system in general, a situation attributed to prevailing political climate in the country.

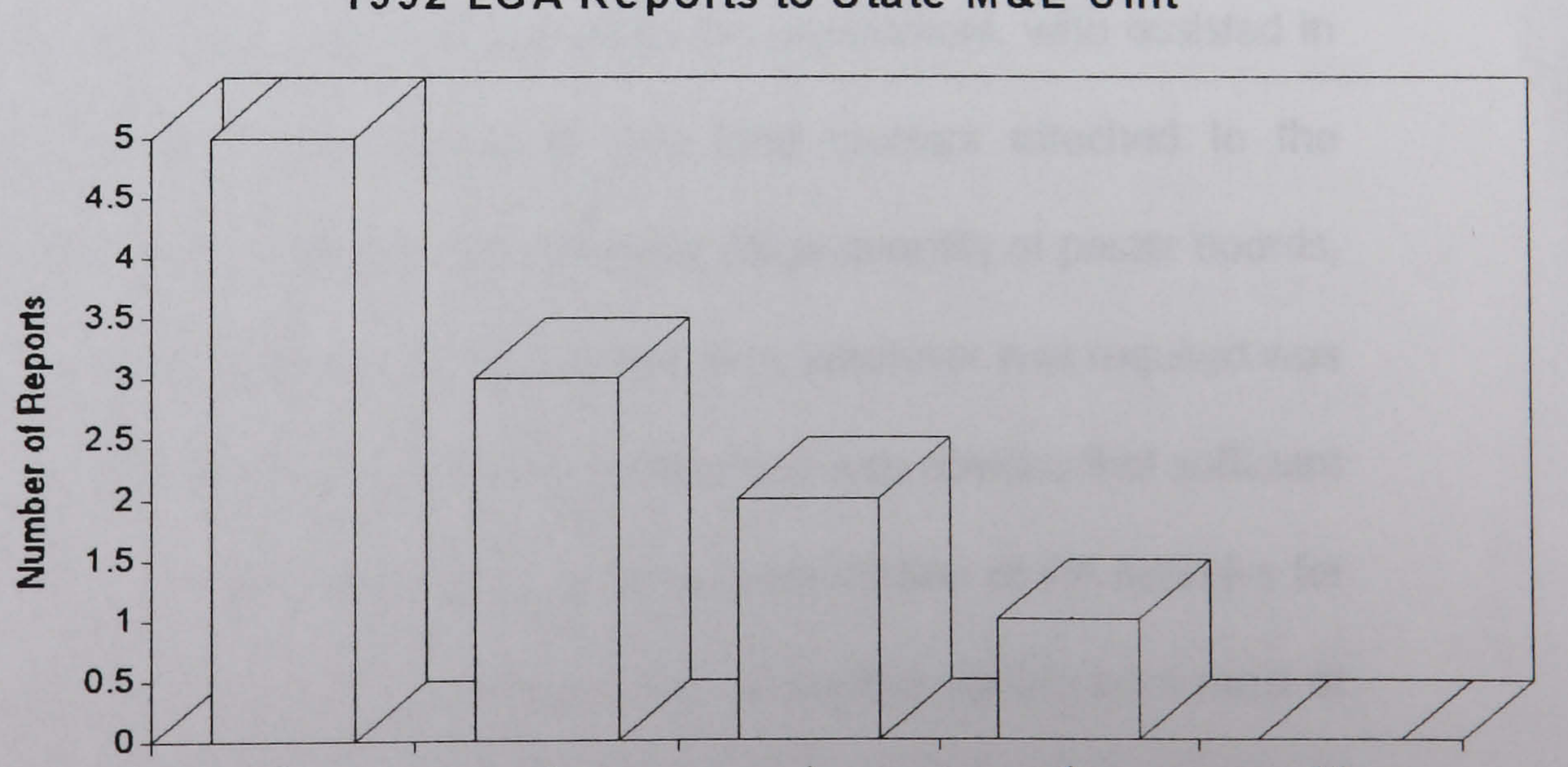
He said,

"the establishment of the MIS is very important and we are doing our best, but how can it function well, if the department does not even have a vehicle to

supervise what is happening in the LGAs. Reports have not been submitted, people are still confused on what they are expected to do. To be honest with you its establishment was done very hurriedly without proper consultation with people from different parts of the country.

The political situation has made things worse, the PHC Department has not been able to execute any project since the civilian appointments, the new Commissioner is more concerned with building hospitals. Suddenly PHC has been forgotten. Unless initiatives come from the federal level, it is going to be very difficult for the MIS to function, because we do not have the resources. I am even worried about sustainability of current PHC programmes in the state".

Figure 6.6



The State EPI Unit

Earlier I mentioned that the LGA EPI unit operated a separate information system and data collected by the unit was not submitted to the LGA M&E unit but rather to the State EPI department. UNICEF is one organisation seriously involved in the eradication of childhood diseases in Nigeria. In chapter one UNICEF's objectives to this effect and the level of financial commitment are discussed. In addition a separate reporting system was established to ensure effective data collection and monitoring of EPI activities.

The state EPI M&E office has the responsibility for monitoring and supervision of EPI activities and data collection in the LGAs. Reports are organised, summarised and graphically displayed in the Co-ordinator's office. According to the EPI Co-ordinator, funding and all resources for his department came directly from UNICEF Headquarters in Bauchi. He had been in the health service for twelve years, had basic public health and community health officers certificates, and was given six months specialised training by UNICEf on EPI programmes, data collection, organisation, analysis, presentation and the preparation of reports.

There were six other officers assigned to the department, who assisted in monitoring activities in the LGAs and two land cruisers attached to the department. The co-ordinator had a calculator, large quantity of poster boards, file jackets, paper, markers, ruler. According to him, whatever was required was provided. On entering office of the EPI co-ordinator it was obvious that sufficient data was received, demonstrated by graphic presentation of EPI activities for 1989 to 1992. Furthermore I was shown files containing reports from most of the LGAs for 1993. He pointed out that reports were regularly submitted, either him or his officers paid regular visits to the LGAs. Forms are collected on schedule from those LGAs that are unable to submit to the office.

Reports are summarised and submitted to UNICEF Headquarters. When I asked him about the graphs on the walls, he explicated,

"it is easy for me to know how may children are immunised in each LGA for each of the childhood diseases; which LGAs have submitted all or some of the reports and which LGAs are often late in submission, we are able to do something about it".

The State Department of Planning Research and Statistics

The State Ministry of Health is divided into eight functional departments, one of which is the Department of Planning Research and Statistics (DPRS), responsible for among other things collection and analysis of data from secondary health facilities. Data collection is handled by the Statistics Office of the State Epidemiological Unit. The statistics office collects two sets of data, notifiable diseases and emergency notification.

There are forty notifiable diseases, selected due to threat they pose to health of the population; and diseases that are covered by specific control programmes which incidence are monitored to assess effectiveness of the programme. These include Human Anthrax, Aids, Brucellosis, Cerebrospinal Meningitis, Chicken pox, Cholera, Diphtheria, Malaria, Tetanus, Yellow Fever, Poliomyelitis, Measles, Pertusis, Trypanosomiasis, Dracunculiasis, and others. Routine Monthly Disease Notification Form, DSN - 002, is used by the statistics office to summarise submissions from health institutions.

On the other hand, immediate or emergency notification is required in two situations. Imminent death due to Aids, Human Anthrax, Cerebrospinal Meningitis, Cholera, Plague, Human Rabies, Typhoid and Paratyphoid fevers, Smallpox and Yellow Fever. When an epidemic of any disease occurs, the Immediate Notification Form DSN - 001 is used (FMOH, 1991).

I spoke to officers at the statistics office, there impression was that albeit, the reporting system had improved, there was still a great deal of duplication between information for notifiable disease system and the PHC MIS. for example data was collected on all childhood diseases from state health departments, clinics and hospitals, similar data are also collected through the PHC system with no harmonisation.

Since establishment of the PHC Department and the M&E unit, the two data processing departments of the ministry were not able to co-ordinate information activities. The DPRS responsible for gathering data from secondary and tertiary health institutions both public and private, submits reports to the Epidemiological Division, Department of Disease Control and International Health, of the FMOH, while the PHC Department submits to the NPHCDA.

There was no integration of data to form a state health information system, that would combine information from primary, secondary and tertiary health systems. According to the State PHC Co-ordinator, the two heads of department had not even had any formal meeting, since the Director of DPRS believed the M&E should be under his department, within the statistics unit and not operated as a separate unit.

6.5: The MIS at Federal Level

Background

The Division of Planning, Monitoring, Evaluation and Research of the NPHCDA compile and analyse reports from the LGAs, submitted through the State M&E Office. Quarterly reports are sent downwards to the Zonal Office, State and LGA PHC Departments. However, both the state and LGA M&E Co-ordinators reported their had been no feedback from central level.

Initial interview was with the Assistant Director, Planning, Research and Statistics, National Primary Care Development Agency (NPHCDA), who provided a briefing on establishment of the Agency, achievements of PHC in Nigeria; and operations of the MIS or M&E. The two concepts have been used interchangeable, and there seem to be confusion on which nomenclature was most applicable, MIS or M&E. To explicate, the Assistant Director, suggested at inception M&E was used but as the system developed, management information system was conceived with broader application.

The general impression from central level's perspective was PHC had been successful in Nigeria to the extent that other developing countries have copied the Nigerian model; and studies by national and international bodies have shown that PHC in Nigeria highly successful. However, he cautioned that there were still problem areas, one of which was the information system. I was directed to see officers responsible for the MIS for detailed discussion since he was not up to date with current state of affairs with the information ssytem.

Meeting with the M&E department at this level was rather difficult at a time when political events in Lagos was rather unsettled, I was only able to meet with officers involved in the information system in mid September. Officers reiterated that although M&E was established immediately after implementation of PHC in 1987 at national level and was piloted in 52 model LGAs between 1987 and 1991, national objectives were set and LGAs were encouraged to set objectives in the context of local problems and resources.

At end of the pilot phase problems were identified which include: low level of reporting; late submission of reports; inadequate supervision; and lack of emphasis on local use of data collect. Predicated on lessons learnt changes were instituted, a nation-wide implementation of the revised system in the 589 LGAs was carried out in 1991. Table 6.11 gives summary of reporting from the LGAs based on analysis carried out by the NPHCDA, M&E division on routine submissions in 1990. The NPHCDA views frequent transfer of LGA workers, lack

of political commitment and poor financial arrangement as major constraints impinging on the MIS. This was based on a nation -wide supervision of selected LGAs conducted in August of 1993. Officers are of the opinion that the MIS had made remarkable progress but there was still room for improvement.

Process

Data submitted to the NPHCDA M&E Department are analysed by computer. Attempt to set up a data bank since 1991 had not been successful at the time of my visit. One officer was assigned to entering data in the computer, hard copies are thus distributed to M&E officers responsible for various states, for analysis, before information are pulled together.

Selected reports are sent to the Epidemiological Department for publication in the Nigeria Bulletin of Epidemiology, which is then distributed to health institutions and organisations in the country. This is the only form of feedback received by the LGAs and State level data collectors.

A rather advanced document which does not serve for grassroots readership and problems, more relevant to academics and medical practitioners. Consequently, appropriate feedback to data collectors is not adequately addressed.

Officers reported that despite problems encountered with the MIS, data generated provided relevant information for policy making, planning and management decisions.

I was informed that to improve transportation for effectiveness of the MIS, the Minister for health provided 10,000 in addition to increases to annual PHC budgetary subvention, while state and LGA governments were to make part contribution. However, most LGAs Bama inclusive had not kept their part of the deal.

Table 6.11: Returns from LGAs 1989 and 1990

Situation	1989	1990	90/89 Ratio
Total LGAs	52	52	1
All 6 returns submitted for twelve months	1 LGA	7 LGAs	7
Any returns submitted for twelve months	10 LGAs	29 LGAs	2.9
Any returns submitted	18 LGAs	39 LGAs	2.2
No returns	34 LGAs	13 LGAs	-2.6

Source: FMOH, PHC, Management, Monitoring and Evaluation Division (1991), PHC Profile 1990, Preliminary Analysis of PHC Records from Selected Model LGAs.

Officers conceded the lack of data analysis in most LGAs visited, but emphasised that Bama was comparatively highly ineffective. The Bama M&E Officer had not made any submission to the state or federal level, and did not seem to understand what was expected .Ineffectiveness at the LGA level was however attributed to frequent transfer of workers.

The control of finances by the LGA Council was recognised as source of impediment in some localities, while financial disbursement was effective in others still under control of the Council. As stated by officers,

" it is really left to the discretion of local politicians, the minister wrote to all of them to open separate account for PHC, it is difficult to force them to do anything, we don't understand what is happening in Bama, things are not moving at all".

Do you think there was enough training on the MIS ?

We had a two day workshop in each state for all M&E co-ordinators, and they were asked to train other health workers in their LGA with assistance from the State M&E Co-ordinator. But it seems some of them don't even understand

what to do. We are going to review reports from other parts of the country and then see what the problems are. Maybe we need to organise more workshops. Unfortunately, you came when our reports had not been prepared. Some of the LGAs are doing extremely well and others are far behind, it is very difficult. "

Since there was so much problem, are you concerned about accuracy of data submitted ?

" At the moment it is difficult to tell, unless data submitted was outrageous we cannot tell. In some cases it is easy to detect, for example if a community that had never reported a particular disease suddenly started reporting, it tells us that something had changed or there was problem. We normally ask the State Co-ordinators to verify, if it was very serious we send one of our officers. For example, on one occasion, I think it was Borno or Benue that reported 14 cases of Bubonic Plague, on routine notification form, it therefore reached us about three months later, we all panicked. Fortunately it was an error in recording. Our concern was, it should have been detected at the LGA or state level.

But you have to understand that people's attitude to data and information would take a long time to change. In the past few people were concerned about information, this is new for community health workers, there is still a lot of work to be done, we have a long way to go. We can only make use of what we have".

I learnt the LGA MIS were about to be computerised, is it true ?

" No, it is not. Some of the states are suggesting that it would facilitate data collection and processing, some donor agencies have already done so in some states. However we really don't think it is practical at the LGA level at the moment. But any LGA that wants to computerise is free to do so. Even at this level we have had problems in establishing a data base."

PART 2

6.6: MANAGERS' PERCEPTION OF THE MIS

6.6.1: Introduction

In part one discussion was based on field data derived from observation, interview and examination of records. In this section, perception of PHC managers regarding the MIS obtained from administered questionnaire is presented. In chapter four, I argued the need for selection of appropriate data collection techniques, study contexts required careful consideration in the choice of approach, tools for data collection, time and other resource implications. Furthermore, experts agree the application of more than one approach provides more insight to a given situation, a basis for comparing and validating facts, particularly in circumstances where those being studied are under varying degrees of constraint. Application of questionnaire was to complement other approaches and to enrich data collected.

6.6.2: Background

Questionnaire administration was a decision taken in the field in order to validate qualitative findings and to compare responses given by PHC managers. A structured questionnaire was developed comprising eighty one questions. Questions 1 to 33, covered issues relating to structure of the information system. Part two, questions 34 to 48 comprises elements of process, while 49 to 55 dealt with outcome. 56 to 60 focused on inter unit / departmental integration and 61 to 64 on community participation. Questions 65 to 71

focused on computerisation of the MIS, 72 to 75 was on perception on general view on the PHC since devolution to the LGA and 76 to 81 were on personal profile (Appendix 2). 18 (72%), of the 25 questionnaires administered were returned and used for analysis.

Prior to administration, the questionnaire was administered to one facility officer and one unit co-ordinator for pretesting. Comments and suggestions provided were used to amend the questionnaire before administration. All questionnaires were distributed by the researcher. During distribution opportunity was given to respondents to read some of the questions to ensure that questions were understood, areas of difficulty were clarified. For expediency managers were requested to return questionnaire before or at the scheduled workshop, on MIS being presented by the researcher, discussed in preceding section.

6.6.3: Results of Quantitative Data

Questionnaire was administered to Co-ordinators, Assistant Co-ordinators, Supervisors and officers responsible for running community health facilities involved in data collection. Co-ordinators/Assistant co-ordinators made up 33.3% of responses, while 66.6% came from supervisors/health facility managers.

Results show that years of experience in the health service ranged from 1-27 years. Professional qualification varied, from community health assistants (44.4%), registered nurse(11.1%), community health officers (16.7), community health supervisor (11.1%) and public health superintendent (16.7%) . Length of time in managerial position was from less than a year accounted for 16.7%, 1 to 5 years (55.6%), 6 to 10 years (11.1%), 11 to 15 years (16.7%) and 16 or more years (5.5%).

Structure

In terms of staff strength, 38.9% of respondents said they had enough staff for work performed while 61.1% did not. Staff breakdown in relation to number of skilled and unskilled staff and the number required in order to effectively carry out responsibilities is on table 6.12.

Training is an essential resource without which workers are incapacitated and unable to carry out responsibilities effectively regardless of their number. Data collectors, analysers and users must therefore be equipped with requisite skills to perform tasks. Managers were asked if adequate training was given to data collectors and those who analysed and used data. Most managers believed that enough training was provided, this contradicts information given during interview (table 6.13).

In relation to specific types of training received by data collectors for the information system, response ranged from medical record training (22.2%), formal health training (16.7%), training on how to complete forms (27.7%) and no response (33.3%). However, when managers were asked to indicate specific training they had received, 5.5% had vital statistics as part of a course attended, 44.4% gave workshop as their response, while 50% had no response. This is perhaps more reflective of the true situation (Figure 6.7).

In this rural community and within the PHC framework the use of high technology is discouraged and often unaffordable, basic instruments affordable by the community are advocated. In this case basic materials needed for the MIS could be limited to paper, pen, pencil, data forms, data storage facilities (file jackets), calculators, poster board, typewriter and transportation. Managers were asked to list materials used for data collection and processing and who supplied them. Responses varied as presented in order of frequency on (table 6.14). Managers were also asked to give their general opinion on availability of listed instruments, 55.6% reported required materials were sometimes

available, 28% said they were always available, 11.1% gave no response, while 5.6% said requirements were rarely available (figure 6.8). In addition managers were asked to list instruments that were always available, sometimes not available and often not available.

Table 6.12: Staff Strength Reported

Respondents	Skilled	Unskilled	Required Number
1.	11	3	19
2.	5	12	2
3.	3	3	5
4.	0	0	0
5.	5	8	10
6.	0	2	3
7.	0	0	0
8.	0	2	2
9.	2	5	3
10.	2	1	8
11.	1	1	4
12.	0	3	3
13.	1	2	10
14.	1	2	3
15.	2	2	4
16.	0	0	0
17.	2	3	6
18.	0	0	14
Total=	35	49	96

Table 6.13: Training Received by Data Collectors

Variable	Yes	No	No Response
Data collectors given training	14	3	1
Staff trained to organise and analyse data	9	6	3
Staff understand reasons for data collection	13	2	3
Manager able to organise and analyse data	9	3	6
Manager trained to organise and analyse data	8	4	6

Figure 6.7: Training Received By Managers

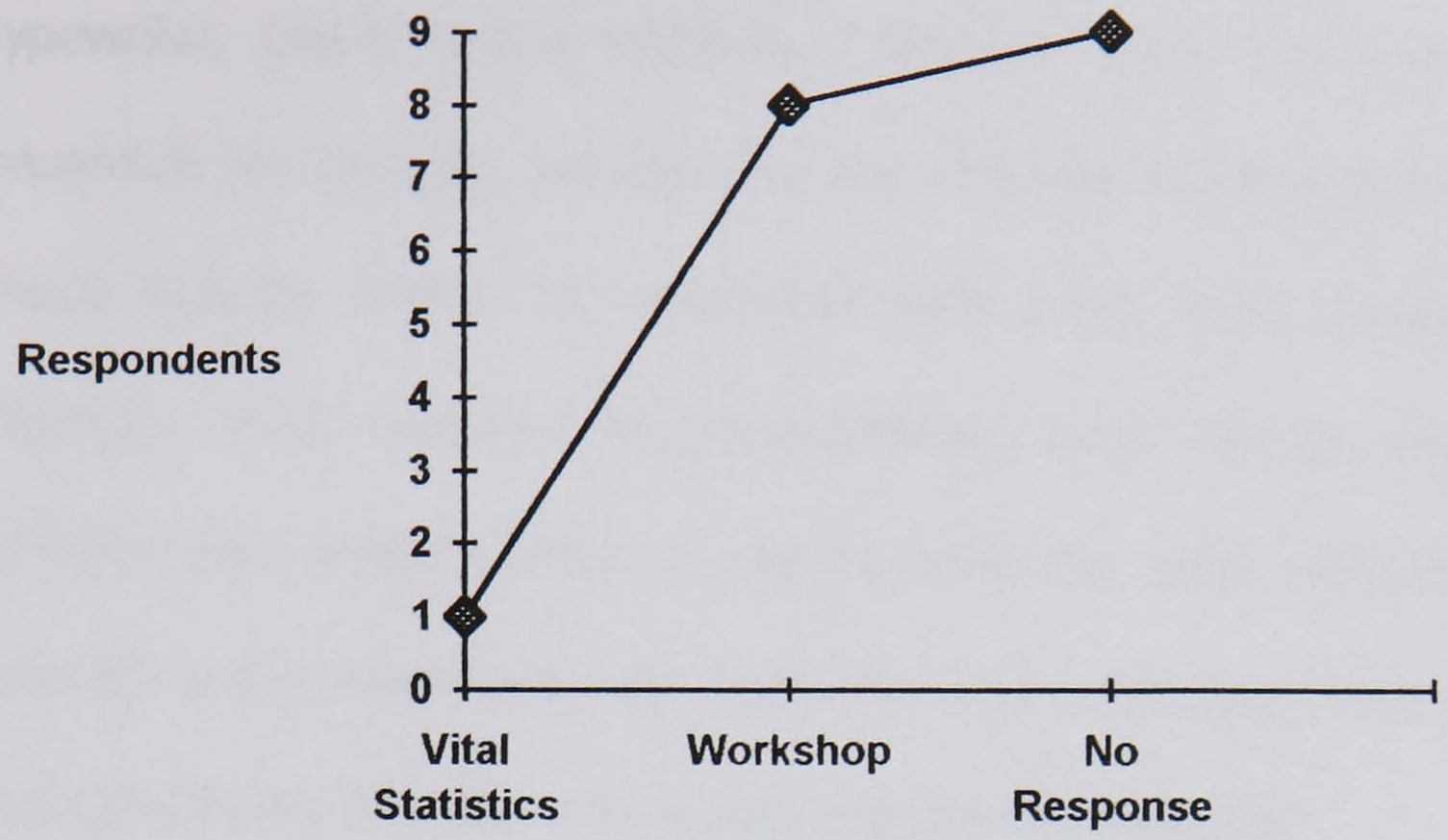


Table 6.14: Material Used and Supplied

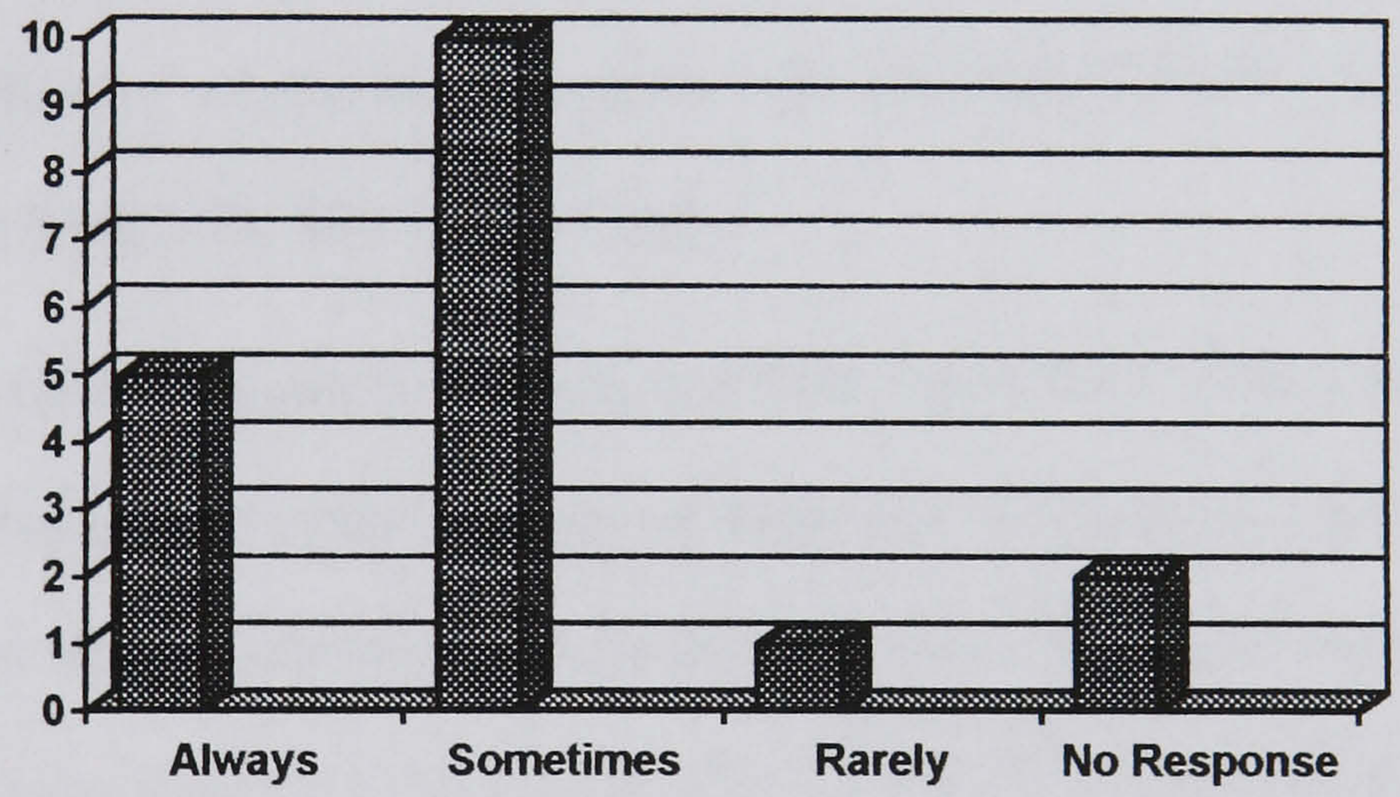
Variable	Frequency	Percent of Response	Variable	Frequency	Percent of Response
Forms	15	45.5	FMOH	8	42.1
Biro	6	18.2	SMOH	1	5.3
Plain paper	4	12.1	LGA PHC Dept	2	10.5
Record books	2	6.1	All of the above	3	15.8
No response	2	6.1	Local Govt.	3	15.8
Trained staff	1	3.0	No response	2	10.5
Vehicle	1	3.0			
Ruler	1	3.0			
Pencil	1	3.0			
Total=	33	100	Total=	19	100

Table 6.14, shows items listed and frequency of response, it indicates forms for data collection were most available as reported by 9 (42.9%) of the 21 responses in that category, 19% said biro was always available, paper by 14.3%, while 9.5% reported all requirements were always available. In terms of what instruments were often not available, out of 12 responses in that category

33.3% reported that no instrument was often available, while 17% reported that paper and pencil were often not available.

It is interesting to note that instruments such as filing cabinet, file jackets, typewriter, poster board, markers, calculator were not listed, albeit basic essentials for analysis, storage and presentation of information. Furthermore, these findings cannot be reconciled with those from qualitative data. For example, 9.5% reported all requirements were always available, unless perhaps their interpretation of requirements for data collection, processing, analysis and presentation was limited to data collection forms supplied by the federal ministry of health which was consistently available.

Figure 6.8: Availability of Material



Results of qualitative data seem to suggest lack of transportation a major constraint in distribution of forms, submission of completed forms and carrying out routine supervision. Table 6.15, shows that 4.7% of 21 responses indicated that transportation was always available, while 27.7% of 18 responses

indicated that it was sometimes available and 8.3% of 12 responses said it was often not available.

However, in a separate question managers were asked whether transportation was always available, 72.2% (13) of respondents (18), reported that transportation was not always available, 11.1% said yes and 16.7% gave no response.

Process

Managers were asked who decided what data to collect, responses were mixed, in some cases decision rested on more than one group or individual. Nevertheless, of the 20 responses given 9 (45%) said the Federal Ministry of Health (FMOH) decided, 15% the LGA. PHC Co-ordinator, similarly 15% indicated the State Ministry of Health, 5% gave self and international organisation respectively, while 15% gave no response.

Type of data collected in addition to the involvement of data collectors in deciding what data to collect impact on interest in the process, results of the process and the use of information derived. Mangers were asked if other data was collected in addition to data required by the (FMOH). Preponderance, 66.7% said no other data was collected, 22.2% gave no response, while 11.1% reported that other data were collected.

Timeliness is an important quality characteristic of the information system. Managers were asked to indicate timeliness of reports from data collectors. In response 38.9% said reports were always on time, similarly, 38.9% reported that submissions were sometimes on time, 11.1% reported they were sometimes late, while 5.5% said were always late and 5.5% had no response.

Table 6.15: Material And Their Availability

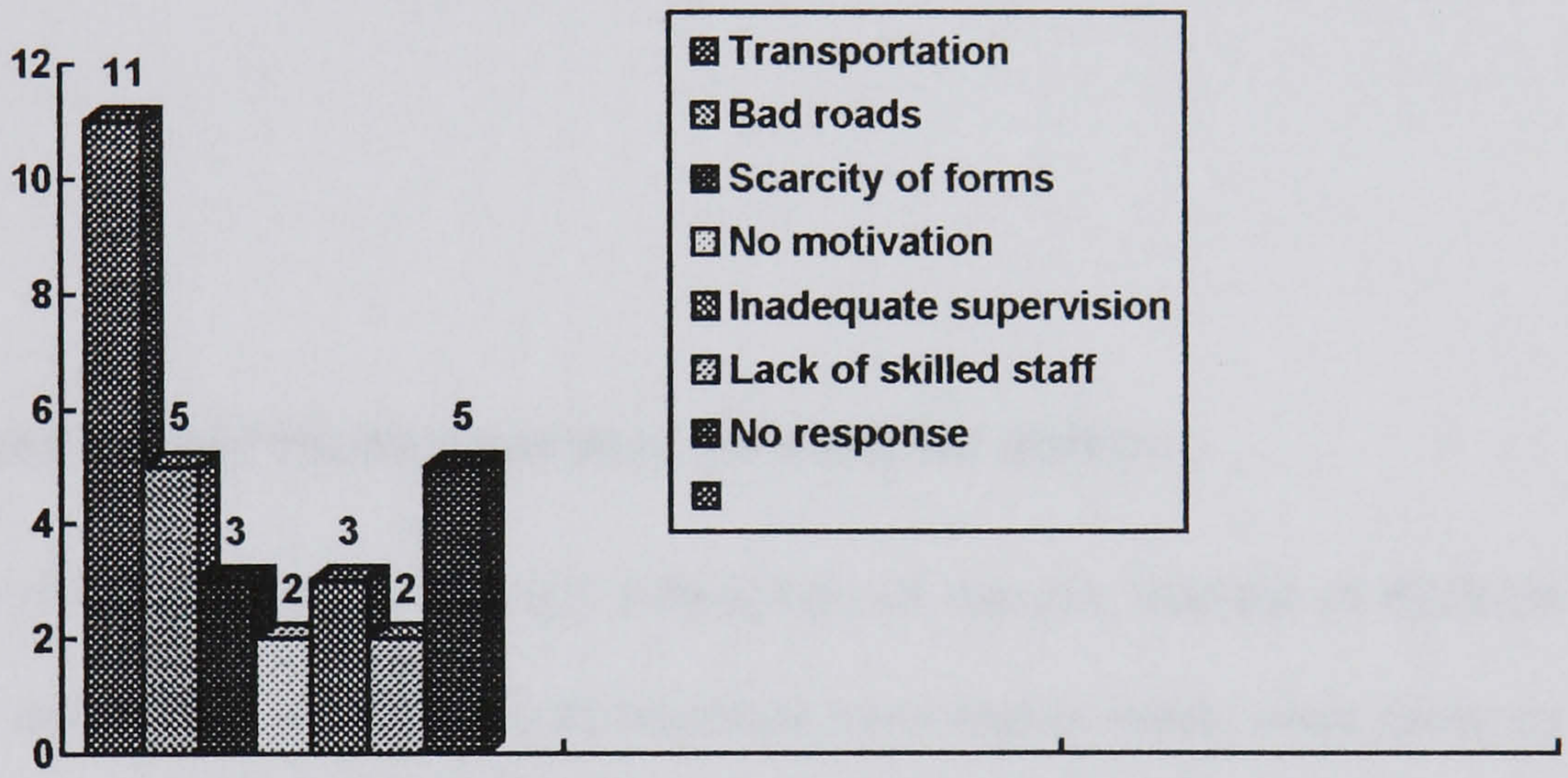
Always Available	% of Response N=21	Sometimes not Available	% of Response N=18	Often not Available	% of Response N=12
Forms	42.9%	Forms	27.7%	None	33.3%
Biro	19%	Transportation	27.7%	Paper	16.6%
Paper	14.3%	Paper	22.2%	Pencil	16.6%
All material	9.5%	Pencil	11.1%	Forms	8.3%
Trained staff	4.7%	Trained staff	5.6%	Trained staff	8.3%
Transportation	4.7%	Money	5.6%	Transport	8.3%
Ruler	4.7%			Audio visual aid	8.3%
Total=	100%	Total=	100%	Total=	100%

Furthermore, respondents were asked to list factors which contributed to delay in report submission, this is presented in figure 6.9 . Results show the lack of transport as a major impediment, given by 35.5% of 31 respondents, bad roads was reported by 16.1%, scarcity of forms 9.7%, others are the lack of skilled staff, which has repeatedly been mentioned as a constraint, and the lack of motivation.

In terms of supervision of data collectors, most respondents (72.2%) supervised workers monthly, 11.1% rarely supervised workers, 11.1% gave no response, while 5.6% had daily supervision. Similarly, when asked whether formal meetings were held with staff, 38.8% had monthly meetings with staff, 27.7% quarterly, 11.1% weekly, 5.5% annually, while 16.6% gave no response. Responding to whether meetings were regular, 44.4% said they were regular, 38.8% reported meetings were not regular, while 16.6% had did not respond.

These findings again seem to contradict findings from qualitative data, in which results showed lack of transport was pervasive and affected supervision, distribution and submission of data collection forms. Managers were asked to indicate the quantity of data collected. Majority (66.7%) gave moderate amount of data, (27.8%) indicated large amount , while (5.6%) gave no response.

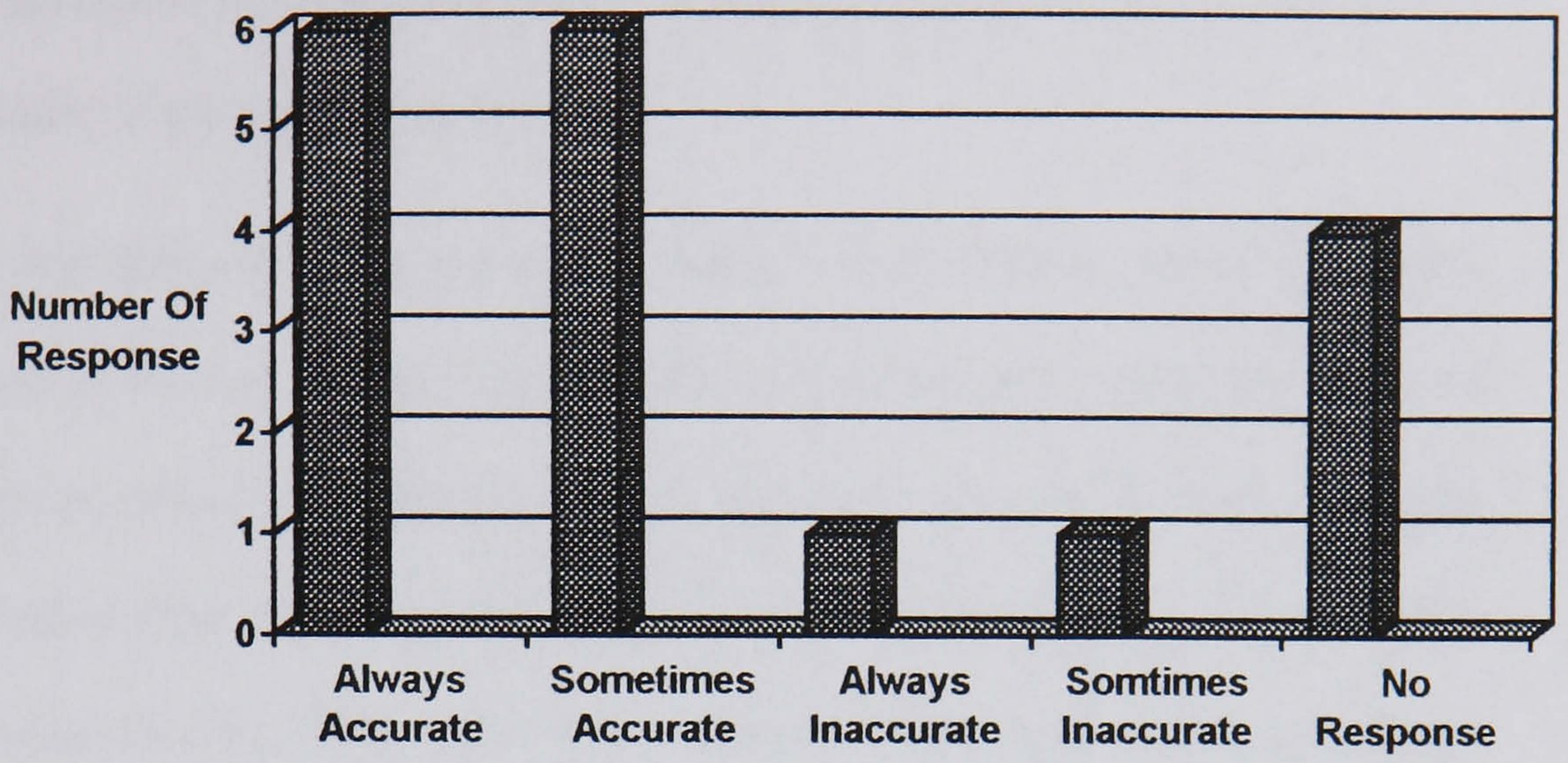
Figure 6.9:Factors That Delay Submission



Relative accuracy is an attribute of a good information system. In contrast to results presented in part one and despite constraints inherent in the Bama PHC information system, 33.3% of managers believed data collected were always accurate, 33.3% said sometimes inaccurate, only 5.5% (1) reported data were always inaccurate and sometimes inaccurate respectively, while 22.2% gave no response (figure 6.10).

This implies that perhaps there are effective ways of assessing data collected and for ensuring accuracy. To this effect 38.8% of managers reported that accuracy was assessed by going through submissions, 27.7% compared reports submitted with facility records and 33.3% gave no response.

Figure 6.10: Accuracy Of Data Collected



Improving the PHC Management Information System

Type of data collected, prompt submission of reports, interest of decision makers, availability of trained staff, feedback from higher levels, were given as factors that would encourage analysis and use of locally collected data. While provision of needed working materials, transportation, training of staff, proper system of record keeping, regular supervision and feedback on submitted reports, were given as measures that would help to improve quality of data collection process. (figure 6.11).

On the other hand to improve quality of data processing, 33.3% said establishment of proper record keeping system, having a separate unit for data collection and processing, appointing an officer for processing of data, while training and motivation of staff reported by (26.6%).

To improve the PHC MIS in general, training of staff was reported by 32% of the 25 responses given, feedback from higher levels reported by 20% and 16% availability of transportation.(figure 6.12).

Computerising Rural Management Information System

Results suggest numerous intervening variables impeding effectiveness of the information system, however, 50% of respondents believe quality of the information system had improved since transfer of PHC to the LGA, 22.2% said it hadn't, while 27.8% gave no response.

Computerisation was suggested by some senior officials within the health system as a measure to improve the MIS. LGA managers were asked to give there opinion, since computerised system would have to be operated by them and invariably affect PHC activities in the community. 44.4% said computer was not necessary for rural PHC information system, 33.3% said it was necessary, while 22.2% gave no response. 61.1% said Bama PHC was not ready for computerisation, 11.1% said it was ready and 27.8% had no response.

Figure 6.11: Requirement For Improving Quality of Data Collection Process

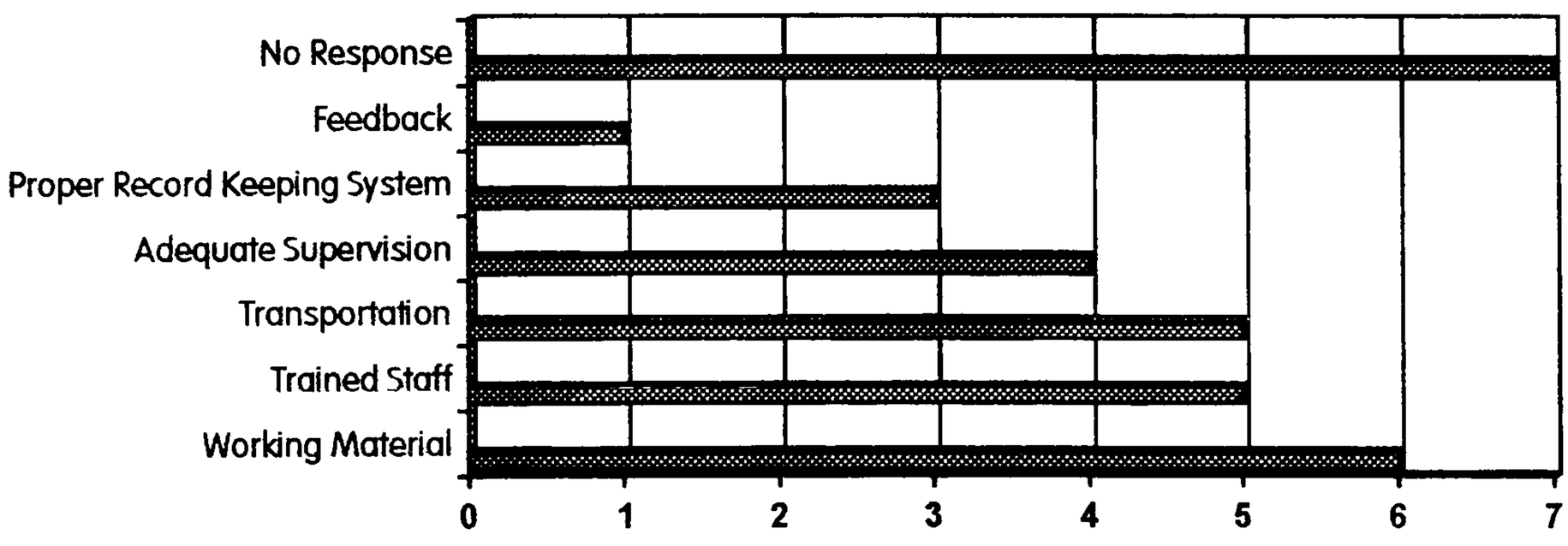
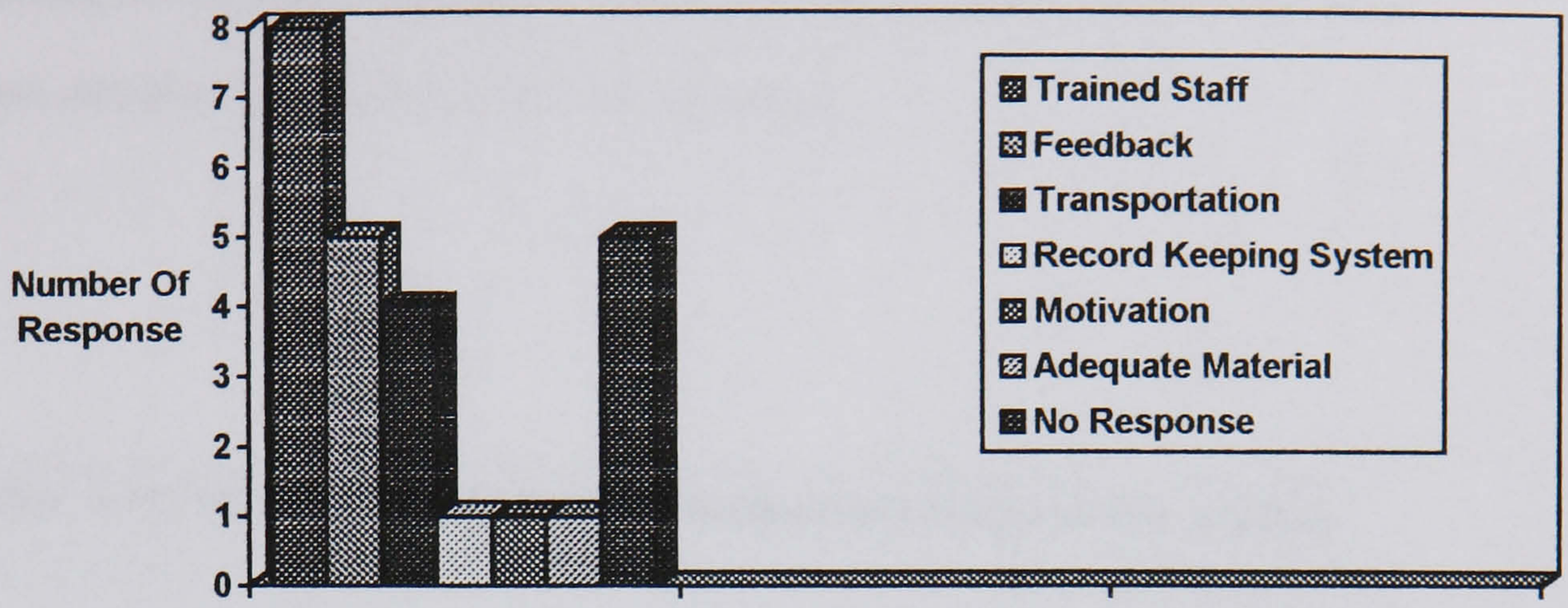


Figure 6.12:Needed To Improve PHC Management Information System



Furthermore, managers were given a list of possible areas that the computer might improve. Of the 33 responses, 15.2% said it would improve data processing, data collection, data storage. 12.1% said it would improve the use of information and health planning. 9.1% said it would improve data retrieval and health services management and 18.2% gave no response.

To ensure that managers had reasonable appreciation of what purposes computer would serve in the information system, they were further asked to provide advantages and disadvantages of computerised rural PHC information system. Accuracy, time saving, easy retrieval of information, usage in health planning and management were given as advantages. Inaccuracy, improper management of the computer, inappropriateness for the LGA, difficulty in its operation and the lack of qualified personnel were given as disadvantages (table 6.16).

Advocacy for computerisation is perhaps predicated on the assumption that this would improve output of the system. This is a rather simplistic analogy,

bearing in mind that what is fed to the computer is what is given out, if quality of input is poor, certainly quality of out put would undoubtedly be poor. Furthermore no matter how flexible and powerful information systems may be, the quality of the input depends on the people who collect, record, organise, analyse and interpret data (Gould, T. et. al., 1992).

Table 6.16: Computerising Rural Management Information System

Advantages	Response	Disadvantages	Response	No Response
Easy collection and retrieval of information	7	Lack of funds	1	For advantages=4
Accuracy	6	Inaccuracy	4	
Better storage	3	Inability to use computer	2	For disadvant.. =7
Time saving	1	Maintenance	3	
Improve health planning and management	1	Lack of skilled manpower	3	
Improve use of information	1	Waste of funds	1	

Arguably, the question is therefore not in provision of the most sophisticated and expensive equipment, which communities cannot afford and health workers are unable to effectively utilise and maintain but rather in having well articulated and delineated grassroots objectives, relevant to information needs in that context as a priority and providing the basic wherewithal.

Experiencing tangible results of their inputs and having the capacity to utilise information derived for daily planning, decision making and management, are enabling factors that would perhaps yield greater dividend than computerisation. Computers would be useful only after rural health workers have gained control of the information system and are committed to it due to its capacity to enhance their work and not to fulfil needs higher levels.

It must be borne in mind that an information system is only as good as the management it serves, if the structure and management of an organisation are faulty, the information system will not be different. The information system is an inextricable part of the health system in general and the management subsystem, consequently, no amount of technology would alter the information subsystem where management of the system is faulty.

Opinions on the PHC System

In addition to issues related to the information system, managers were also asked to opinion on primary health care in general, the information system cannot be addressed outside the system in which it operates. In response to whether primary health care services had improved since transfer to the LGA, (66.7%) said it had and 33.3% gave no response. Areas that were identified for improvement, of the 26 responses given, 27.8% said more children were immunised, 22.2% said drugs were available, 16.7% said more health education, health services closer to the people and increased community participation, while 33.3% gave no response.

Respondents were asked to identify problems encountered since transfer of primary health care to the LGA, out of 41 responses given, 22% said the lack of transportation, 22% reported the lack of trained personnel, lack of necessary working materials by 14.6%, lack of fund 12.2%, 9.6% improper supervision, 4.8% said the lack of political will, while 12.2% gave no response.

Respondents reported that in addition to the state and federal ministries of health, meetings were also held with local departments of education, agriculture, works social welfare etceteras. 66.7% of respondents said they had meetings with other units \ departments, 22.2% said they did not, while 11.1% gave no response. In addition to the ministries of health for which 18.8% shared information, 18.8% shared with the Ministry of Education, 12.5% with agriculture, 9.4% with the Ministry of Works.

6.6.4: Summary

This is an attempt to assess quality of the management information system, a subsystem of the health care system often not exposed to quality assessment. With my obvious lack of experience in the use of qualitative data collection approach and application of the structure, process and outcome models, there are bound to be short comings. However, one could only learn by exposition to constructive criticisms which are most welcomed.

From these findings it is obvious the PHC information system in Nigeria and particularly in a rural community has changed from hitherto non existent of a structured PHC information system, where data collection was not mandatory; most rural health facilities did not maintain records of services provided; or data gathering was very perfunctory, to the current formalised structure, albeit with problems. Research findings in this chapter indicate serious inconsistencies within the current Bama PHC MIS. For example, it is difficult to reconcile current structure of the information system, its objectives and the information needs of primary health care managers in Bama. Objectives set do not match resources provided for their attainment; objectives pursued are not consistent with objectives set; and policies developed are inconsistent with those implemented; data from functional units within the department and related organisations are not integrated; and requisite training not provided; objectives and the MIS process not understood by those responsible for its operation.

Although, most studies in health care quality assessment have reservation in relating structural quality to process and outcome, findings in this study seem to suggest a strong relationship between structure, process and outcome of the information system. In the next chapter, analyses will focus on identification of sources of structural incongruity based on data presented and possible effect of structural incongruity on the process and outcome of the primary care management information system in Bama.

CHAPTER 7

STRUCTURAL INCONGRUITY IN BAMA PHC MIS

7.1: Introduction

In chapter six, research findings on the structure, process and outcomes of the Bama PHC Management Information System were presented. Research results point to persistent structural inconsistencies pervading local and state level MIS, which I have termed incongruity. This chapter is an analysis of findings, with elaboration on sources of incongruity and an attempt to arrive at a model that would perhaps provide some insight and possible explanation to causes of incongruity and implications for the information system.

7.2: The Concept of Incongruity

Varying definitions of structure from diverse schools of thought were examined in chapter 2.2, to reiterate, Mintzberg, (1979), from a rather mechanistic perspective, views structure as a static framework for distribution of functions and tasks to achieve co-ordination. A formalistic definition that seem to denigrate the presence and effect of social interaction that is inherent in all structural arrangements and at the same time presupposes co-ordination of activities through structural arrangement. However, Handy, (1987), extended this definition to the interaction between the organisation and the external environment. Selznick, (1949), from a naturalistic perspective defined structure as an adaptive organism shaped in reaction to the characteristics and commitments of participants as well as to influences from external

environment. Along this notion, Watson, (1986); Morgan, (1986)), view structure as fluid, dynamic and abstract, an entity that results from interaction of workers and change as perceptions and actions change.

From these, a broad definition of structure was adopted in 2.2, and comprises abstract and tangible elements, utilised in the transformation process. These include the formal and informal relationships among people performing various tasks, as well as technologies applied. A definition consistent with definition of structure by Donabedian, (1969; 1980; 1990), in health quality assessment. From this perspective, structure addresses attributes of a setting in which health services are provided, and includes, the physical structure, attributes of material resources such as facilities, equipment and money. Of significance is the number, size, geographic distribution of health facilities, types of equipment available and their conditions.

Human resources which address the number, qualifications, experience, distribution of workers, professionals, para-professionals, support staff and their ratio in relation to tasks. Administrative and organisational arrangements, established policies and procedures. Assessment therefore involves evaluation of the quality and quantity of the three sets of resources.

From the foregoing discussion there are responsibilities organisations ought to fulfil that would enable attainment of organisational goals and objectives. These I have divided into two as organisational functional (**OFR**), and organisational social responsibilities (**OSR**). Functional responsibilities relate to elements of structure tangible and intangible that are basic for accomplishing tasks, which the organisation must provide. Social responsibilities are elements within the work environment that provide a conducive and satisfying work environment.

Similarly by meeting these responsibilities, organisation has some expectations of the individual toward attainment of goals. These I have equally

divided into two, as individual functional responsibilities (**IFR**), and individual social responsibilities (**ISR**). Functional responsibilities imply those activities the individual ought to carry out as contribution to attainment of organisational goals. Social responsibilities are related to individuals behaviour within organisation which would enhance attainment of objectives. These are presented on table 7.1. Incongruity arises when there is discrepancy in OFR or OSR which would invariably affect IFR or ISR, figure 7.1.

McGee (1979), defined incongruity from a social psychological perspective, as absurd, unexpected, inappropriate and otherwise out of context events. This definition is adapted to imply the lack of harmony between the main elements of the organisation, in this context OFR and OSR in relation to IFR and ISR.

Broadly speaking this includes how the organisation is structured in relation to the wider social structure; objectives set and the input provided for their attainment; policies and strategies in relation to those pursued and attained; organisational resource and their use for attainment of organisational objectives.

Figure 7.1: Sources of Incongruity in the Bama PHC System

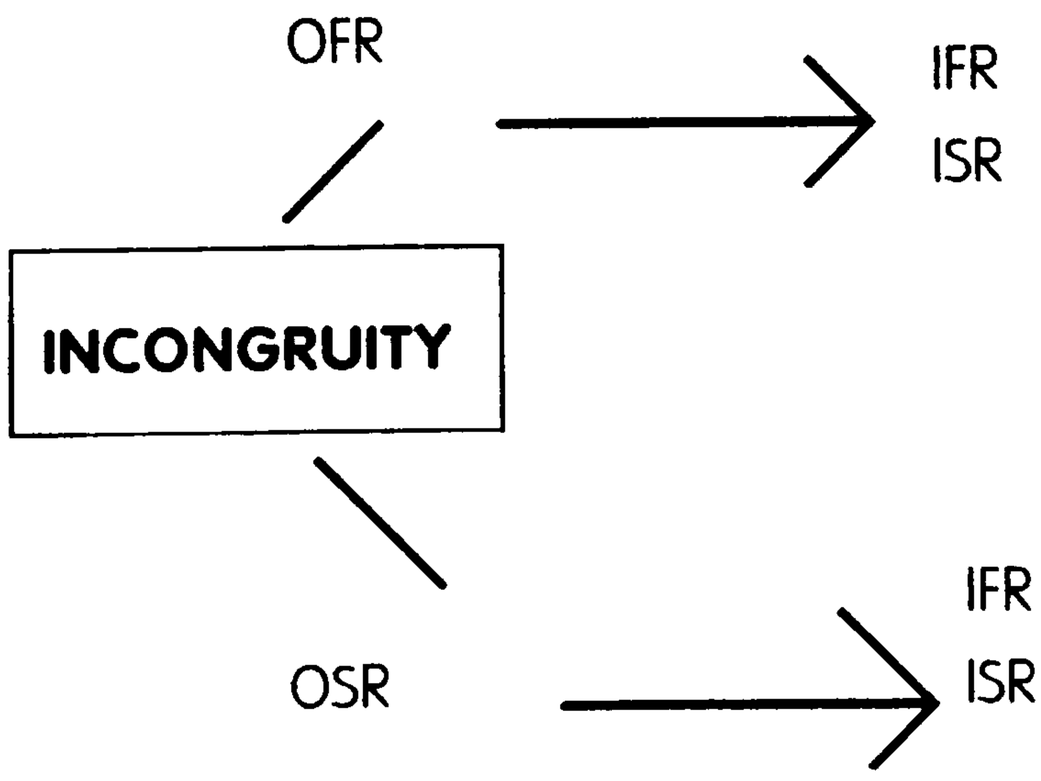


Table 7.1: Nature of Responsibilities

Functional responsibilities, OFR include:
1. Appropriate organisational structure
2. Organisational objectives are explicit
3. Training provided to attain objectives
4. Resources are available for attainment of objectives
5. Remuneration for effective attainment of objectives

Social Responsibilities = OSR
1. Conducive working environment
2. Effective communication channels
3. Norms and values that meet individual's expectations
4. Fair application of rules, regulations to all members of the organisation
5. Promotion of individual goals

Individual Functional Responsibility =IFR
1. Contribution toward meeting organisational goals
2. Hard work
3. Accomplishment of tasks in accordance to standards
4. Optimum productivity
5. Commitment to organisation

Individual Social Responsibility =ISR
1. Compliance to Organisational norms, values, rules and regulations
2. Good interpersonal working relationships

7.3: Sources of Structural Incongruity

7.3.1: District and Health Facility Level

In chapter 5.4.1 the objectives and framework for the national health information system, as well as time table and guidelines level for data collection and report submission are discussed. To reiterate, the Federal Ministry of Health stated, the information system would satisfy local, regional and central health

information needs for PHC managers, an enabling tool for data collection and perhaps monitoring and evaluating of health activities at community, health facility, district and local government. The aim was to improve decision making and management of primary health services, empower managers to assess the adequacy, effectiveness, progress and efficiency of health programmes and perhaps lead to improvement of PHC services and health of the population served (FMOH, 1992).

Record of services provided by TBAs and VHWs in the community are submitted to the nearest health facility supervisor, who collate, scrutinise, transfers information to appropriate forms and then submit reports, to respective unit assistant co-ordinators at the PHC headquarters, who subsequently forwards to the M&E Co-ordinator. Research findings suggest that no health facility officer knew what objectives of the MIS were, the M&E manual had not been seen, training was not provided, roles of community health officers was limited to completion of forms. Data presented on table.6.5 suggest that although 100% of health facility officers reported sufficient quantity of forms were provided, 100%, believe that forms were many and complex.

Each health facility had about 35 forms to be completed, yet most did not understand the forms neither was sufficient training provided. Most health facility officers interviewed, reported training was needed on how to complete forms and that data collection was for the Federal Ministry of Health. These findings are underscored by quantitative results presented in 6.7.

Objectives for the MIS at this level were not delineated, implying incongruity at **OFR**, objectives set were relevant to higher level needs and incongruent to local needs. This level of incongruity seem to nullify traditional theories that presuppose organisations are collectivties geared to the pursuit of predefined objectives, which members of the organisation strive to attain.

Furthermore, quality assessment of structure in health care presented in 3.6.1, includes the number of professional and non-professional staff involved in provision of services; ratio of personnel to patients; staff qualification, skills, knowledge and experience in relation to responsibilities; and staff development training. No matter the context, tasks performed without appropriate training or skill, may not yield desired outcome. Although theorists have argued the presence or absence of certain elements of structure would not always affect outcome. However, there is no one best approach to quality assessment in health care, Rosenberg (1990), suggests that each assessment technique has strengths that makes it useful in certain circumstances as well as weakness that renders it inappropriate in others. In this context structural assessment seems essential, effectiveness of the MIS and attainment of identified objectives regardless of level, would depend on the extent to which it was understood, the capacity of health workers involved to carry out their tasks effectively, and availability of basic materials necessary for accomplishing tasks.

Distribution of staff in the health facilities and their qualifications presented on table 6.4, show a total of 26 staff providing primary health care services to a population of nearly 200 thousand. Only 8 (30.8%) were qualified staff, implying some sort of professional training in health care. 18 (69.2%), of total staff were not qualified, implies no formal education but had training on the job. Surprisingly, staff strength in the LGA for 1993 was not different from that of 1987, despite devolution of PHC responsibilities to the LGAs coupled with the implementation of the MIS.(table 7.2). Obviously the lack of adequate training specific to the MIS, compounds the problem of health workers who are already over stretched. In addition to their heavy work load this few number of qualified health workers are further burden with completion of numerous data forms for which adequate training was not provided.

These findings are further supported by quantitative results obtained from managers which show that 38.9% of respondents said they had enough staff

for work performed while 61.1% did not have enough. Managers reported a total of 35 qualified workers, 49 unqualified and 96 additional workers required in order to effectively carry out responsibilities. Shown in table 6.12. However, in terms of training there was some discrepancy between qualitative and quantitative findings. Managers were asked if adequate training was given to data collectors in the field and managers who analysed and used data. Most managers believed enough training was provided. (table 6.13). Yet earlier findings at the community, LGA and state levels showed that training was grossly inadequate.

One probable explanation for this outcome could be fear of retribution. Perhaps health facility managers in completing questionnaire, probably thought it was their responsibility to train data collectors, therefore the fact that stating training was not provided might be viewed as deficiency on their part.

Table 7.2: Staff Strength at PHC Health Facilities

	1993			1987		
Facility	nurse/ midwife	*CHO/Q	**non Q	nurse/ midwife	*CHO/Q	**non.Q
Bama MCH	1	2	10	3	1	16
Tandari MCH	1	0	7	2	1	5
Soye clinic	0	1	1	0	1	1
Darajamal clinic	0	1	4	0	1	1
Kashimiri clinic	0	1	0	0	1	0
Gulumba clinic	0	1	1	0	1	2
Banki dispensary	0	1	1	0	1	1
Kumshe clinic	0	1	2	0	1	2
Taramuwa clinic	1	0	2	-	-	-
Bakari clinic	Not open	-	-	-	-	-
Total =	3	6	28	5	8	28

* CHO/Q= Community Health Officers and other qualified staff
** Non.Q= Non qualified staff

Reports from health facilities are expected at the LGA M&E Office at stipulated times of the month, again according to time table provided by central level, table 5.9. Since the MIS was not computerised, reports are compiled and delivered by hand, task cannot be accomplished without transportation. Distance from health facilities to point of report submission, varies ranging from 10-120 kilometres, (table 6.2.), each health facility officer was expected to submit reports at least monthly. However, research findings indicate the lack of effective means of transportation, a problem that was pervasive throughout the entire MIS, at health facility, LGA and state levels.

This is underscored by quantitative data obtained from managers on their perception of the MIS discussed in 6.7. Results showed out of 21 responses for that category, 4.7% respondents stated transportation was always available; out of 18 responses 27.7% said transportation was sometimes available and out of 12 responses, 8.3% said transportation was always not available.

These findings point to serious level of incongruity at **OFR.** MIS objectives for this level were not delineated nor were existing ones understood. To accomplish tasks toward attainment of objectives, workers must have the necessary skills and knowledge, this was not the case for most of those involved in the MIS. Furthermore, means of transporting completed forms from source of data collection to the M&E unit was often difficult to obtain.

However, experts suggest, information requirement at each level of the MIS hierarchy, would be determined by objectives and the nature of decisions made. As pointed out by Martin, et.al, (1991; Cashmore, et.al.1991; Lucas, 1990; Dixon, 1990; Long, 1989; Anthony, 1965), decision making in organisations fit into three categories, operational, tactical and strategic. Each level is concerned with different levels of problems and responsibilities and therefore each level's information needs are at variance.

Clearly, at the level of rural health facility and community, what could be regarded as the operational level, information needs are those relevant to the day to day provision of health services and management in the community. Information expected from the MIS at this level as pointed out by Lucey, (1993), must be timely and accurate, detailed and provided on a daily or weekly basis.

Prior to data collection information needs of managers at this level would be determined in view of prevailing circumstances. More importantly, information collected would address health services needs, outcome of services provided. For example data collected at this level on immunisation would not only be on the number of children immunised but on the number of children presenting at the clinic and deaths from any of the childhood diseases.

In contrast, strategic or top management such as the NPHCDA, are concerned with wider Planning, policy decisions and objective setting. Cashmore, et.al (1991), views strategic decisions as often one off decisions that affect future direction of the organisation. Therefore large amounts of information are required from external resources, with lesser quantity from internal and preferably in summarised form, a wide range of margin in this case is allowed for the level of accuracy. Therefore data on the number of children immunised could be collected annually for use both at central and local level.

District Health Management Committee within the MIS

Contribution of community leaders in effecting the MIS was appreciated and thus the prominence given District Heads on the MIS structure, on figures 5.1 and 6.1. It is documented by the FMOH that effectiveness of PHC and that of the MIS required input from local leaders, as custodians of their communities. Their involvement would ensure community health needs are identified and met; members of the community mobilised to participate in PHC programmes; ensure that relevant information are collected and forwarded to the LGA level.

To this effect and within the MIS framework, establishment of the District Health Committee was deemed imperative.

There were four districts in Bama, with population ranging from 8,000 to 150,000. District Heads of the two largest districts were interviewed, both had contrasting view of the state of PHC in the community. Interview results are presented in (6.2). To reiterate, the District Head of Woloji with a population of 52,000, was aware of the committee system and had one established in his district; involved in identifying health needs of the community and communicating them to the LGA Council; took active part in ensuring that health services are adequately provided; and was satisfied with PHC services in the community.

On the other hand the District Head of Bama with a population of 150,000, was not aware of the committee system, had none established; did not understand what was expected of him and seemed far removed from the PHC system; and was dissatisfied with prevailing management of PHC in the community. The absence of the district management committee has serious implications for activities of TBAs and VHWs as well as community mobilisation for their contribution and utilisation of primary health services. This is considered a structural incongruity at the organisational level **OFR**.

In summary, limited health facility officers responsible for provision of health services to large populations are at the same time responsible for collection of data on numerous forms, which are neither analysed or utilised. Furthermore, adequate training was not provided on how to complete forms, analyse and use of data. The analysis and use of data at this level under current structure is out of context, since data collected had no delineated objectives. At the same time, there was no effective means of ensuring that completed forms were submitted. However, time table for submission of forms was again provided by central level without perhaps consideration of local constraints.

Arguably, if the district management committee was perceived as vital to the operations of the MIS at the community level, appropriate measures would have been taken to ensure its establishment at each district. Paradoxically, the PHC Co-ordinator was not aware of which district had an operating district health committee.

How would traditional rationalist theorists attempt to reconcile attainment of objectives without essential resources ? While their emphasises on consistency, rationality, co-ordination and efficiency, describe vital elements in organisational life, there is failure in addressing other equally important elements, those insalubrious realities in organisational organisations which are perhaps more common in non-western organisations. However, Brunsson, (1989), in his theory of organisational hypocrisy, posits that organisations are being exposed to increased inconsistent norms in their environments, yet most descriptive and normative organisation theories assume either that external norms are uniform, can be made compatible or that conflicting norms can be avoided.

Most importantly, a quality characteristic suggested in literature by information theorist is that of relevance. Indeed, some theorists Lucey, (1993), for example argue that relevance is the over riding quality attribute for the MIS. This implies relevance of the MIS design, objectives and resources to the organisation, as well as relevance of tools for data collection, processing and information produced to decisions making and needs of the organisation or individual user. By implication structure addresses those essential relevance elements of the informtion system. From discussions thus far, it seems structural incongruity at the district and health facility Level are derived from at

OFR and **OSR**

- Design is and operations of the MIS inconsistent with local information needs.

- National objectives defined while objectives for the local MIS not delineated. Tools for data collection are designed and distributed to provide data required for measuring national objectives.

- The relevance of data collected to local information needs is ambiguous.

- Timetable for data collection determined without cognisance of local constraints.

- Training not provided

- Community input inadequate.

7.3.2: Structural Incongruity at Local Government Level

The Bama PHC Department Comprises six functional units, Water and Sanitation; Guinea Worm Control; Essential Drugs and Equipment; Disease Control, Expanded Programme on Immunisation and Oral Rehydration Therapy; Maternal /Child Health and Family Planning; and Monitoring and Evaluation. Roles and responsibilities of each unit in general and to the MIS structure, processrual activities and outcome within each unit, internal co-ordination of the MIS within the PHC Department and inter-organisational relationships were discussed in 6.4.

To reiterate, responsibilities of the LGA PHC as the Administrative Headquarters include resource mobilisation and redistribution for effective operations of the MIS. The M&E Unit within the department has responsibility of collecting, organising and analysing data. Information derived summarised and reports submitted to the State PHC, M&E Unit. In addition information derived from the M&E Unit and other units, according to the NPHCDA, would be utilised for decision making. This section examines sources of incongruity for each unit.

Water and Sanitation Unit

In review, this unit's responsibility, includes house inspection, refuse collection and disposal, burial of unclaimed corps, inspection of hotels, bakeries

and bars, inspection of motor parks and public toilets, eradication of mosquitoes, monitoring the digging of bore holes, the supply of pipe borne water, collection, disposal of waste, and maintenance of general environmental sanitation.

Data collected for the MIS are the number of new and functioning wells, latrines and boreholes. In this way the impact of selected national environmental health programmes activities are being monitored (FMOH, 1992). National objectives set for monitoring are that 40% of the population will live within 200 metres of a source of potable water; and 60% of the population will live within 50 metres of a pit latrine or toilet.

Findings in 6.4.1, suggest two systems of data collection. One system utilises forms provided by the federal ministry For the MIS, Book 7 LGA, which contains forms 7LGA 1&2 for monthly and annual records of environmental health activities. On the other hand, note books were used for written reports on house inspection, refuse collection and disposal, burial of unclaimed corps, inspection of hotels, bakeries and bars, inspection of motor parks and public toilets and eradication of mosquitoes. These reports were used to monitor compliance to government directives.

While sufficient data collection forms were provided by the federal ministry of health, other data collection materials were not often available, there was not even a blank sheet of paper available for use in the office when we needed it. Books for the MIS provided by the ministry were visibly organised on the table, other records were simply not maintained, observation confirmed by the acting Unit Co-ordinator, findings discussed in (6.4.1)

Neither the Co-ordinator nor the Acting co-ordinator, responsible for overall data collection, organisation, analysis and use, knew what the MIS objectives were. There was no written guidelines on operations of the MIS, the M&E manual had not be seen and was not available in the unit. No distinction

between data requirement at this level and that at the health facility level, neither was there an appreciation of how data collected could be utilised.

There was no job description available in the unit for any worker, no delineation of the unit co-ordinator's responsibilities related to the MIS. Furniture was of the barest minimum. Stationary and other data processing materials were not available. These findings may sound incredible and perhaps far fetched from what would be expected in an MIS system, but this was however, the reality. To expect rational behaviour and commitment from workers involved in data collection under such circumstances is undoubtedly irrational. These findings are suggestive of serious incongruity at **OFR,**

- MIS objectives not delineated
- Training not provided
- Data for local use not defined
- Unclear contribution to the MIS
- Lack of essential resources

Unit for Expanded Programme on Immunisation, Oral Rehydration Therapy and Disease Control

The unit was responsible for effective management of immunisation and control of diseases, data are collected on the number of children immunised against the six childhood diseases, tetanus, diphtheria, tuberculosis, whooping cough, measles and polio, cases of yellow fever and diarrhoea treated in the LGA. Within the MIS, book 2LGA was for recording data on tracer diseases and outpatient attendance and book 5LGA for record of immunisations. Other data collection forms are provided by UNICEF for recording cases of yellow fever and the number of diarrhoea cases treated.

National objectives being monitored within the MIS for 1992, include full immunisation of 80% of children with 1BCG, 4 Polio, 3 DPT/OPV and 1 Measles at one year of age, 50% of pregnant women fully immunised with 5 doses of

tetanus toxoid. In 1992 a set of new targets were published for the immunisation programme and include: 80% coverage for children under the age of 1 by 1993; as part of a goal to eradicate polio by the year 2000, over 80% immunisation with OPV will be achieved by 1995. While 95% measles coverage would be achieved by 1995 for complete eradication by the year 2000; 80% or more tetanus toxiod coverage for pregnant women by 1993; 80% coverage with tetanus toxiod for women aged 15 to 45 by 1995 (FMOH, 1992).

These objectives are again consistent with national information needs and to lesser extent those of the operational level. Findings show that the unit operated a parallel information system within the PHC Department, based on directives from UNICEF. A situation that creates structural problem, impinges on integration and co-ordination of the information system. Understandably, resources are provided by UNICEF to ensure effectiveness of the unit.

There were sufficient forms for the MIS, provided by the federal ministry of health. However, there was no documented guidelines on how the MIS ought to operate. Objectives for the unit relevant to information needs were not defined and role of the unit within the MIS was ambiguous and not understood by the Unit Co-ordinator. No training was provided on data analysis and rudimentary materials for data processing not available. Findings that point to incongruity at **OFR**, depicted by:

- lack of objectives for the unit
- Lack of training
- No delineation of data required locally
- Essential resource for data processing not available
- Existence of a parallel information system

Maternal / Child Health and Family Planning Unit

The main focus of the Unit was provision of numerous health and preventive services to women and children, which include ante-natal, peri and post-natal

services; nutrition education to mothers; family planning services; training of TBAs and VHWs as well as supervision of their work. Data collection was on the number of deliveries in PHC health facilities and within the community by TBAs; neonatal, infant and maternal deaths; prenatal and postnatal attendance; and number and type of family planning devices dispensed.

Reports compiled at village and facility levels are submitted to the MCH/ FP unit, monthly and annual reports are then submitted to the M & E unit. Data collection forms used are, Book 3LGA for monthly and annual records of ante natal care and pregnancy outcomes, Book 4LGA for monthly and annual records of family planning, and Book 8 LGA for monthly and annual records of growth monitoring and promotion. The Unit Co-ordinator was a Registered Nurse and a trained Midwife, Community Health Officer and the only formally trained family planning service provider in the LGA. Of all the health workers within the Bama PHC system, she had the most qualifications. This perhaps explains her ability to utilise data provided for other purposes, discussed in 6.4.4, under outcome. Further elaboration would be revisited in 7.3.4 under the effect of incongruity in the MIS.

Results show that data collection forms and storage materials were sufficient. Data processing materials were however not available. Similarly, there was no clear appreciation of objectives of the MIS; training was not provided on the MIS in general nor in data organisation or analysis; transportation essential for supervision of workers not available; data for local needs not defined.

Findings that point again to incongruity at **OFR** :

- Objectives not defined
- Local data need not defined
- Materials for data processing and analysis lacking
- Training not provided
- Basic resource not available

Essential Drugs Unit

The essential drugs and equipment unit established in 1989 was responsible for the procurement and distribution of essential drugs to VHWs and health facilities in the LGA; ensures effective implementation of the DRF scheme and monitors the storage of drugs and maintenance of equipment in the health facilities. These functions were the responsibilities of a community health supervisor, with Diploma in Health Services Administration. National objective was to ensure that 80% of VHWs and health facilities had 80% of essential drugs available continuously.

The reporting system was basically concerned with procurement and sales of drugs Each health facility officer reported on quantity of drugs sold and more drugs provided with remittance. Form designed by the unit co-ordinator known as "stock Balance Sheet of DRFs" was used for data collection from health facilities on available drugs, quantity and estimated cost of drugs, quantity/cost of expired drugs.

While all health facilities were involved in the DRF and necessary forms were available, there was however, no established system of organising and storing submissions from health facilities. Records on amount of money remitted were kept on pieces of papers, on cursory glance would be considered scraps. The lack of working materials was given as one reason for improper record keeping. (6.4.5). Similarly, the MIS operation was not appreciated, neither was the contributions expected of the unit acknowledged.

There was no formal exchange of information between this and other units. A major part of the DRF structure, was establishment of a separate bank account, which was not operational in Bama, the Local Government Council controlled all PHC finances. A situation that seem to have serious implications for the operations of the MIS. Government's objectives for establishing the DRFS were noble, to ensure that essential and safe drugs were available and

affordable, particularly in rural communities were there had been great competition between traditional practitioners, quacks and modern medicine. Consequently, the main objective was to have an operating system in each LGA,a rather simplistic one with limited potential for ensuring safe drug use in communities.

In a recent survey by the FMOH, primary health care in the 52 model LGAs was assessed. The essential drugs scheme formed part of the survey, areas examined include establishment of the scheme; price list displayed for public; a DRF bank account; adequate and regular supply of drugs; security system on doors and windows; shelves for drugs; and drugs arranged in alphabetical orders and labelled with generic names. Results from this survey showed that 42 of the 44 LGAs had a DRF bank account.(FMOH, 1992). Since rural health workers are left with the responsibility of dispensing potent drugs with often minimal supervision, one would have expected the establishment of local objectives that address such issues as proper use of drugs and the efficacy of treatments; number of patients that are actually able to purchase drugs from health facilities rather than private drug stores; and the use of drugs for treatment rather than other purposes.

Drugs are purchased by government and sold to patients at highly subsidised rates, a system abused in different parts of the country. In Borno state for example and in Maiduguri in particular, management of the DRF scheme was rather problematic, attempts to institute measures for curbing the disappearance of drugs from state health institutions to local private drug store were often not successful. The operation of this system independent of the MIS, obviously limits the scope of data within the MIS and creates further disintegration. Sources of incongruity are at OFR and focus on:

- Lack of MIS objectives within the unit
- Lack of understanding of the MIS process
- Existence of a parallel information system
- Data not relevant to local needs

Guinea Worm Control Unit

Function of the unit was mainly eradication of Guinea Worm (Dracunculiasis), through health education, provision of drugs, extraction of parasites, and dressing of wounds and distribution of linen water filters. Services are provided by VHWs in the community. Guinea Worm a debilitating water borne disease affected more than 6,000 villages in Nigeria based on 1989 survey.

An ad hoc programme was established in 1988, the Nigeria Guinea Worm Eradication Programme, with objective of eradicating Guinea Worm by 1995. Two staff managed the Guinea Worm programme in Bama, while VHWs provided services in the community. The Monthly Guinea Worm Surveillance and Reporting Handbook, was used for recording new cases of Guinea Worm and intervention instituted. From this book figures are obtained by the Co-ordinator to compile reports.

There was general satisfaction with services of VHWs in the community, reported the Co-ordinator. However, there was minimal supervision of health workers due to lack of transportation. Again data collected from this unit was not integrated in the MIS, another parallel system within the Bama MIS. Surely, any data collected on diseases affecting the community ought to form part of the overall picture of health situation in the area. Furthermore, there is every need for the Water and Sanitation Unit and the Guinea Worm Control Unit to operate in concert, supplying each other with relevant data. while government obstreperously announce the existence of an integrated management information system, the reality is far from it.

Findings are suggestive of incongruity at **OFR**:

- Existence of a parallel information system
- MIS objectives not defined or appreciated
- Local data needs not delineated

Monitoring and Evaluation Unit.

The Monitoring and Evaluation Unit is the nucleus, effecting and effectiveness of the PHC management information system are responsibilities of this unit. MIS concept implies a system for integrating data from varying sources to produce needed organisational and management information. In this context, the function of the unit involves integrating data from other units, organising, analysing, storing as well as disseminating information. Essentially, strength and success of PHC programmes and assessment rest on the effectiveness of the M&E Unit, supported by appropriate structure.

Results of this study indicate that while the M&E Officer, responsible for the MIS was practising health professional with many years of experience, training for management of the MIS was inadequate. MIS objectives and process were not fully appreciated. Essential working materials were not available, tools for data analysis absent and data storage system extremely poor. Systems for distribution, collection of forms and supervision of community data collectors severely weakened by lack of transportation. There was no clear mechanism for exchange of information between the functional units and related organisations in the community involved in provision of PHC services.(6.4.6).

At the M&E Unit, results point to incongruity at **OFR** and **OSR**,

- Objectives not explicit
- MIS process not understood by the MIS officer
- Inadequate training
- Lack of basic materials for data storage and processing
- Lack of resources for effecting the supervisory system
- Non integration of more than 50% of functional units
- Non integration of related systems
- Unconducive work environment
- poor system of communication

In the first instance there is incongruity in expecting rationality out of irrationality. The information system cannot possibly function effectively if the M&E officer responsible for its operation did not understand what he was expected to do or how. It is therefore difficult to regard this as an integrated management information system. Albeit there is no water tight definition, it is however generally agreed that an MIS has the capacity to integrate information from various sources, which provides relevant, accurate, timely, understandable information for managers at various levels of the organisation(Hicks; 1984; Dixon, 1990: Bocchino, 1972; Lucey, 1991).

Davis, et al. elaborate, that the conceptual structure of an MIS is a federation of information subsystems for different functions, in this context Water and Sanitation; Guinea Worm Control; Expanded Programme on Immunisation; Family Planning; Maternal /.Child Health, Essential Drugs, while each subsystem has its own information needs, they also contribute to a common database necessary to support decision making and management of the organisation. By this conceptualisation each unit could operate its management information system, however to arrive at a Bama MIS, data are required from all functional units of the department and relevant units that operate in the environment.

Furthermore, application of the concept "systems" implies an amalgam of various elements, their interrelationships and interdependence, which provide wider picture of the system. A conceptualisation applied to the MIS in 1.7, addresses the interrelationships of the various subsystems within an organisation that contribute to the MIS as well as the various inputs necessary for the information system to function. These inputs allow for the processing of data to obtain output as information required for management decision.

It implies, the MIS requires data from all functional subsystem in order to provide management with comprehensive information. An idea supported by the FMOH, (1992), that an effective monitoring system requires an integrated information system at the community, health facility, local, state and federal

levels. Failure to integrate related organisations within the PHC system creates disintegration.

Results of this study in 6.4.7, show data from related organisations providing PHC services in the community were not integrated in the MIS, the Comprehensive Health Centre managed by the University of Maiduguri Teaching Hospital; the State Zonal Sanitation Department and the State PHC Zonal Office. What is not clear is the level of integration suggested by the FMOH. In reviewing literature on the MIS circulated by the FMOH, there was no suggestion of data integration between the PHC department and related organisations in the community providing PHC services.

Consequently, only part of data generated in the community was compiled and eventually utilised for analysis. Perhaps these organisations had means of submitting PHC data to central PHC M&E Division, however, interview with Professor Mausa, for example, in the case of the Comprehensive Health Centre, with highly trained record officers, adequate supply of working materials and the involvement of senior research academics, yet data collected seemed to disappear into oblivion. This perhaps gives credence to arguments that question the interrelationship between structure and outcome in health quality assessment asserting that good structure does not always lead to good outcome.

Office of the Bama PHC Co-ordinator

The PHC Co-ordinator had the responsibility of effectively implementing all PHC programmes in the LGA; ensure various health committees are set up; represent the LGA on health matters at state level; facilitate intersectoral collaboration and community participation; and mobilise resources, ensure their effective and efficient utilisation. The Co-ordinator's limitations as the most senior manager lie in his low level education and the lack of basic training in management or in the MIS. It was obvious during the study that departmental

planning and management was very limited. Generally, my interview with the Co-ordinator in 6.4.7, corroborated findings from other units and reinforced severity of incongruity within the MIS.

What could be regarded as the major cause of persistent lack of essential working materials for the MIS emerged during an interview with the PHC Co-ordinator. There was no ambiguity about it, PHC and invariably MIS resources were controlled by the LGA Council. As was discerned, the PHC budget was merged with the general LGA account. The Council controlled finances, is responsible for hiring, promotion and training of health workers; payment of salaries and other remuneration; the purchase of drugs, equipment and other materials; and building of health facilities.

Paradoxically, study results indicate that while more health facilities were built, equipment and trained health workers for the new health facilities were not available. Consequently, buildings dilapidated, yet more continued to be built. However, what is obvious from discussion was the lack of the most rudimentary materials needed for data processing. There was not a single manual typewriter for the entire PHC Department nor a calculator, blank sheets of paper were scarce.

On the other hand figures on the number of health facilities in the LGA would form part of central statistical report, providing false information on the ratio of facilities / population, since some of these buildings are not operational. Interview findings suggest that capital projects yielded money for local politicians whose period in office was supposedly limited, consequently, effectiveness of the PHC and efficiency was not a priority. Devolution of PHC to the LGAs was an attempt by government to decentralise decision making, give control of PHC to the grassroots and perhaps facilitate implementation of PHC programmes. This well intentioned initiative is proofing to be major constraint for the PHC and the MIS implementation in Bama.

The result is incongruity between government policies and actual implementation, between objectives set and those pursued by government officials. Brunsson (1989), distinguished an action from a political organisation based on the level of inconsistencies that are inherent in both. In action organisation talk and decisions are instruments for co-ordination of action toward production. Thus the three variables talk, decisions and products tend to be consistent. In contrast, these variables are not so connected in political organisations, often grounded in inconsistencies, political organisations tend to employ inconsistencies in order to reflect inconsistencies within the environment.

Ineffective use of PHC resources by politicians may not be an uncommon phenomenon, and may not be due to the point of resource control but in the general attitude of government officials in Nigeria, imbedded in wide spread corruption, diversion of official power to personal use (Udoji, 1973). Transfer of resource management to the PHC Department may therefore not necessarily result in better utilisation.

The LGA Management Committee is part of the PHC management information system, being the highest level of participation from members of the community (figure 6.1). The Committee if established would be responsible for ensuring effective implementation of PHC in the LGA; provide a forum for examining health matters and information derived at village and district levels; enable joint solution of local problems with politicians, administrators, health officers and community leaders. However, its non extant was attributed by the PCH Co-ordinator to lack of interest from politicians. This lack of interest could be due to varying factors among which are personal interest and most of all failure to appreciate its significance to the information system, which was not clear even to health workers responsible for operating the system. This created a gap in operations of the MIS with no forum for open discussion of health problems and information from community leaders.

From the foregoing discussion and in view of sources of incongruity in the functional units, LGA incongruity could be summarised as emanating from **OFR** and **OSR**

- ♦ policies incongruent to those implemented
- ♦ Control of PHC resource by external body
- ♦ Lack of basic working materials
- ♦ Inadequate training on the MIS process
- ♦ MIS objectives at the LGA not clear
- ♦ Local data need not delineated
- ♦ Inadequate number of staff with limited skill and knowledge of the MIS
- ♦ Procedure and guidelines for the MIS not existing
- ♦ Non integration of data from over 50% of functional units
- ♦ Non integration of data from related units
- ♦ Weak system of community mobilisation
- ♦ Unconducive work environment

Health scientists when discussing quality of patient care tend to argue the difficulty in relating outcome of care provided to structural conditions (Roemer, 1988), yet improper design is claimed to be one of the causes of failure of most information systems (Eilon, 1993; Garner, et.al. 1992). Also, quality assurance geared to satisfaction of customer cannot be devoid of structural quality, activities such as cleanliness and appearance of the waiting room and patient care areas, appearance and skills of health care providers are elements of structure, that some how impact on outcome of services. Perhaps the issue at stack is the level of impact and correlation which may vary in different environments.

The importance of structural quality assessment in health subsystems other than the patient care subsystem cannot be trivialised particularly, in none industrialised contexts where resources are meagre and numerous factors in the environment tend to affect the use of resources. In industrialised countries, it is perhaps taken for granted that resources are always provided to accomplish defined objectives, most likely considered at the planning stage.

This however, may not be the case in other contexts. Obviously, these findings are suggestive of significance of structural quality assessment in deprived areas.From rationalist perspective, structure are instruments, deliberately designed for attainment of organisational goals, when determined are communicated to members of the organisation and resources provided for their attainment, as a result, rational behaviour and commitment are expected from organisational members.

However, results from this study strongly indicate this cannot be universally applied applicable. Objectives are not always delineated within an organisation and workers may not always understand what objectives the organisation was trying to attain; and roles and responsibilities may not be clearly defined.

7.3.3: Incongruity at State Level

According to the FMOH (1992), functions of the State M&E Division include supervision and provision of technical support to the LGAs for effective implementation of the MIS; submissions from LGAs are scrutinised, quarterly and annual reports forwarded to the PHC Zonal Office and the Federal Ministry of Health in Lagos; feedback sent to the LGAs; data analysed, provide a basis for local monitoring and evaluation of PHC activities in the state.

Findings in 6.5, show that the State M&E Department faced similar problems as the LGA PHC MIS. Most fundamental was the M&E Officer's limited understanding of the MIS objectives and process. He had minimum training, made obvious by lack of activity in his office. The few number of reports submitted were handled by another department.

The lack of transportation was emphasised by the State PHC and the M&E Co-ordinators as serious constraint in effecting the MIS. A situation attributed to the lack of political commitment. To reiterate, the PHC Co-ordinator, stated,

"political administrators are more concerned with execution of capital projects, mainly the building of hospitals, PHC programmes are receiving minimal attention at the moment, we hope things will not be allowed to deteriorate. I am worried about sustainability of primary health care".

Having said this, since the EPI Unit, which is part of the PHC Department, albeit resources and support were provided by UNICEf, was it not possible to co-ordinate activities such that the two Units could utilise the same vehicles? On a few occasions the M&E Co-ordinator was involved in joint supervision with the EPI officers, an arrangement that proved ineffective since priority was understandably on activities of the EPI Unit. Also the parallel arrangement of the two departments in the LGA was applicable at state level. One was operated by the M&E Unit and controlled by the PHC Department and suffers from the lack of basic resources, the other was run by the Unit for Expanded Programme on Immunisation, controlled by UNICEF.

Similarly, there was no sharing of information or merging of data generated by the Department of Planning Research and Statistics (DPRS), of the State Ministry of Health, responsible for data collection from state secondary and private health facilities. According to the State PHC Co-ordinator, the Director for Planning Research and Statistics preferred the M&E Unit integrated into his department rather than having a complementary relationship. An integrated system at this level would have the potential, if data were effectively analysed, of providing a broad picture of the epidemiologic, demographic, health and illness situations in the state. Regretably this was not the case.

Findings suggest incongruity at both **OFR and OSR**

- MIS objectives not clear
- Inadequate training
- Resources inadequate
- Lack of political commitment
- Disintegrated system
- Poor working condition

7.3.4: Federal Level

The focus of this study was to assess quality of a local level PHC MIS, which would be incomplete without input from central level officers responsible for policy and planning. Moreover, discerned from research findings is the MIS was designed by and operated on directives that level and data collected seem more relevant its information needs. Focus of interview was directed to to clarify and confirm findings from LGA and state levels. Fortunately, as discussed in 6.6, M&E Officers at this level had just completed national supervisory visits to selected LGAs, of which Bama was included and were thus up to date with current developments in the MIS at LGA and state levels.

Interview results with officers responsible for Borno, who visited Bama LGA confirmed some of findings in this research. For example, outcome of their visit revealed serious lack of political commitment and poor financial arrangement, which have had adverse effect on the MIS. It was confirmed that Bama and a few other LGAs had no separate PHC account, resulting in problems in he appropriation and accountability. However, appeals were forward to LGAs affected by the Minister for Health, but problem seem to have persisted.

This level of incongruity at **OFR** which seems to be the determinant of other incongruity was acknowledged and confirmed at the three levels of the PHC system.

In terms of objectives set by central level and their ambiguity and lack of relevance at LGA level. Officers argued that each level was directed to develop relevant local objectives, that would however reflect national MIS objectives. Their findings seem to be consistent with that of this study, that most LGAs had no local objectives. In the case of Bama a contributory factor proffered was the obvious lack of skilled personnel. Thus confirming this level of incongruity at **OFR**.

Similarly, the lack of transportation with its far reaching implications in the operations of the MIS at the LGA and state levels was conceded as a major impediment. However, it was attributed to the nation wide petrol scarcity. More importantly, the request of the Minister for shared responsibility between federal and local government in providing a vehicle for the MIS was not implemented. This further validate findings and the incongruity at **OFR**.

Contrary to my findings, central level officers were of the view that number of forms completed by LGA health workers was not a problem and that forms were not complex. On the other hand could not understand why data analysis and the use of data was not carried out. One probable reason given was the frequent transfer of LGA workers, rather than the lack of adequate training.

It was however confirmed that training for LGA and state M&E Co-ordinators was limited to a two day workshop, since the M&E manual was available and co-ordinators presumably had the capacity to read and understand its contents. An assumption invalidate after the August supervisory visit to Bama where the M&E officer did not know that collected reports should be forwarded to the state level. This was a surprise to them, suggesting that perhaps more training was after all required. Thus a confirmation of incongruity at **OFR**

Nevertheless, discussion in 6.6 and confirmation by officers interviewed indicate suggest some of these problems were identified after early implementation of the MIS and what was then perceived as corrective measures instituted. Problems identified include: low level reporting from the LGAs; late submission of reports; inadequate supervision; and lack of emphasis on local use of data collected (FMOH, 1991). The lack of mechanism for determining accuracy of data submitted from the LGAs was confirmed, only highly distorted figures can be detected and verified. It was assumed that before reports reached the NPHCDA, sufficient scrutiny would have taken place at LGA and state levels. A rather weak assumption, in view of the constraints faced by the MIS at these levels.

At the central level the MIS was computer assisted, processing, analysis and storage are computer based. However, attempt since 1991 to set up a data bank was not successful. The notion of computerising LGA MIS was not considered feasible but their was some potential at state level.

7.3.5: Discussion

Sources of incongruity has been to a greater extent at **OFR**, and less on **OSR**, perhaps due to limited data collection on **OSR**, which address sensitive areas in employer / employee relationship, working conditions, remuneration, values. Structural assessment was not predicated on established standards, since there was none but on what was thought to be the minimum required to operate a manual information system of the most rudimentary type, in Nigeria, derived from adaptation of Donabedian's definition of structure. Basic elements of structure addressed in both data collection and analysis are:

- A framework for the management information system relevant to Bama PHC.
- Objectives relevant to the Bama management information system
- Established procedures relevant to Bama management information system .
- Appropriate manpower, in quality and quantity with the right training, for the Bama management information system
- Data collection tools relevant to the Bama management information system.
- Data processing materials relevant to Bama management information system
- Availability of basic resources necessary for data collection ,processing and use relevant to Bama management information system.
- Effective managerial and supervisory mechanism relevant to Bama management information system.
- Existence of relevant political and community support

Research findings point to the absence or partial presence of most structural element, essential for effecting a practical rural MIS. It could be argued that the only structural element consistently available was data collection forms designed and distributed by the FMOH but on the other hand did not provide relevant information needed by local managers. Obviously, what pervades the system was a great deal of incongruity, between what was stated and documented from what was practised.

Recent writers on organisation, argue that the dominance of rationality, co-operation, co-ordination and goal attainment common in early theories of are due partly to the reassurance they provide to managers rather than their applicability. Examples are derived from discussion on conflicts by Cyert et.al, (1963); Albrow, (1968); Elger, (1975); Watson; (1982), On politics, ambiguities, sectional interest, (Morgan, 1993). Irrationality in organisation Nisbett,et.al.(1980); Argyris, (1971; 1977); Brunsson, (1982); Hypocrisy, Brunsson, (1989); Dissonance, Koolhaas, (1982); Downey, et al., (1975); Tosi, et al., (1973).

Information theorists such as Hicks, (1984), Martin, et.al.(1992), Long, (1992), argue that whatever the use of information, its quality depends on the capacity of the information system to provide relatively accurate, timely, reliable and understandable information. In addition, systems design in relation to varying information needs of the organisation, knowledge, skills and perception of data collectors, processors and managers are factors that affect outcome of the information system (Mintzberg, 1989).

These prescribed quality attributes are perhaps based on presupposition that all information systems exist in organisations with defined objectives, procedures, rules, and responsibilities; and that perhaps organisations in all context operate within rational state, where members of the organisation including policy makers, managers and workers in their intendedly rational state, cooperate toward attainment of organisational objectives.

An assumption that perhaps finds its roots in the traditionalist notion of organisation. Taylor, for example proposed the one best way of structuring organisations, one best way of performing each task. Individuals appropriately matched with task leads to desired outcome. On the other hand Weber's bureaucracy, Fayol, Mooney, Gulick and their management principles, advocated specialisation, division of tasks, co-ordination, co-operation, hierarchy, rules and regulations, standardisation as means to attaining harmony and organisational objectives.

These are theories developed from idealistic point of view, it would perhaps be difficult for such theorists to conceive of situations were attempts are made to attain undefined objectives and resources for attainment of stated objectives are not available. Even within western industrialised countries limitations of traditional theories have been the focus of discussion by contemporary theorists, (Morgan, 1993; Burrell, 1989; Koolhass, 1982; Brunsson, 1989; Starbuck, 1982; Argyris, 1971; Salaman, 1981). Some theories such as those on the influence of cultural differences on organisations, to some degree provide explanation to why organisations and people within them behave differently in varying contexts due to socio- cultural influences.

For example studies by Pondy, et.al. (1983); Smirchich, et. al. (1982). Austin (1990), Ghoshal, et.al.(1990); Hofstede, (1984). Lammers et.al (1979a), (Pugh, 1990; Lincoln, et.al(1986); Lincoln and Kallerberg (1990), Maurice, et.al.(1980). demonstrated the significance of cultural influence in organisations, and thus argue its importance to the design and management of organisations.

Similarly, the structural contingency perspective has the advantage of flexibility and adaptation of structural arrangements to suit contexts. However, studies to validate its applicability have tended to be inconclusive or contradictory. For example, study by Tosi, et al (1973), contradicted findings by Lawrence et al (1967). Again different aspects of social environments were examined by different studies without consensus on how they affect

organisations in varying contexts and tended to address conventional and ideal organisational situations.

Consequently, while existing organisation theories on the design and operation of organisations are quite useful in providing some frame of reference, they have failed to provide explanation for many of the findings in this study. It became imperative that problems within Nigerian organisations have persisted perhaps because they had been addressed under conventional theoretical frame of reference, therefore important unconventional elements in systems overlooked.

The proceeding section examines the effect of identified incongruity on process and outcome of the MIS. An attempt is made on developing the incongruity model as a means of explicating research findings.

7.4: Effect of Structural Incongruity on the MIS Process and outcome

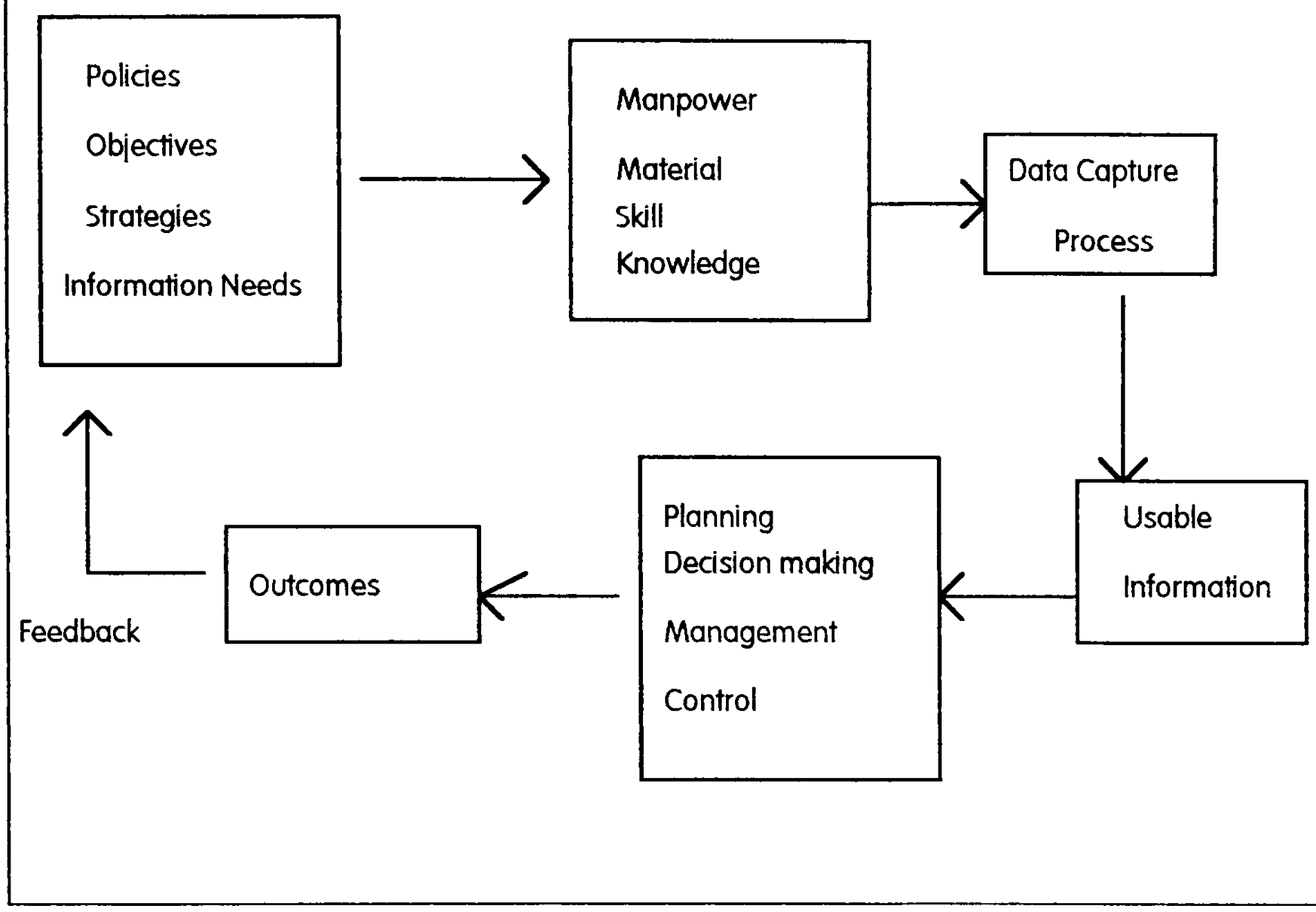
Quality management requires attention to the entire input and transformation process, nature of the inputs and how inputs are processed determine outcome and detection of defect at this stage is most vital in the quality process (Deming, 1966; Crosby, 1979; Drummond, 1992; Ovreitveit, 1992). This presupposes that it is the process not the input that determines quality of outcome. Others have argued that quality and suitability of inputs is vital in quality management. As Drummond, (1992), suggests, output is strictly a function of input, however, to attain satisfactory results careful attention must also be given to the production process. Donabedian argues that the most direct means to assess quality of care was to examine the process of care (1966;1985).

Process in this context within the MIS framework implies activities of planning for data collection; assembling data; organisation, sorting, classification of data; analysis of data, summarising, production of records and reports. According to Bocchino, (1972), it is the capturing of data as close to the point of origin as possible and subjecting it to some transformation based on rules and standards to produce output in the form of usable information.

The output hence applied in planning, decision making, management and control of the organisation. Outcome of such application provides further feedback to users of the output of the MIS, on which comparisons can be carried out with organisational plans, objectives and standards. In assessing processrual activities of the Bama PHC MIS, one faces a very difficult task considering the level of incongruity in the system, and the pervasive weakness in the structure. Evidence demonstrated that relevance of the current MIS structure to Bama PHC is questionable, objectives and standards not delineated. On what basis could process be assessed ?

To proceed with process assessment in view of the current structure would certainly be irrational. The categorisation of findings under structure, process and outcome in chapter six may seem rather simplistic, but it highlights the problem at hand. Discussion in this section is therefore less on process and more on the outcome of the MIS. Outcome from the MIS is addressed at two levels, beginning with examination of the MIS output, in terms of information produced following data processing. Secondly, the relevance , accuracy, timeliness, and understandability of information produced; the use of information derived at each output point; and the effect of information used on the PHC system and on population served.

Figure 7.2: The Information Process



7.4.1: District and Health Facility Level

At the village and district level, as part of an effort to facilitate community participation, VHWs and TBAs are trained to provide a wide range of PHC services to members of the community. Data derived from these services are forwarded to the health facility officer. Structural incongruity identified From discussions thus far, it seems structural incongruity at the district and health facility Level are derived from at **OFR** and **OSR:** design of MIS inconsistent with local information needs; objectives for local MIS not delineated; tools for data collected measuring national objectives; timetable for data collection had no consideration of local constraints; training not provided; and community input inadequate.

There was increasing rejection of services provided by the TBAs in particular by members of the community, due to fear of the effect of family planning devices on fertility of women. Record of services are therefore often not kept, consequently data emanating from the TBAs are often incomplete and unreliable, while reports to the health facilities are delayed. Information provided by health facility officers was confirmed by the MCH/Family Planning Unit Co-ordinator.

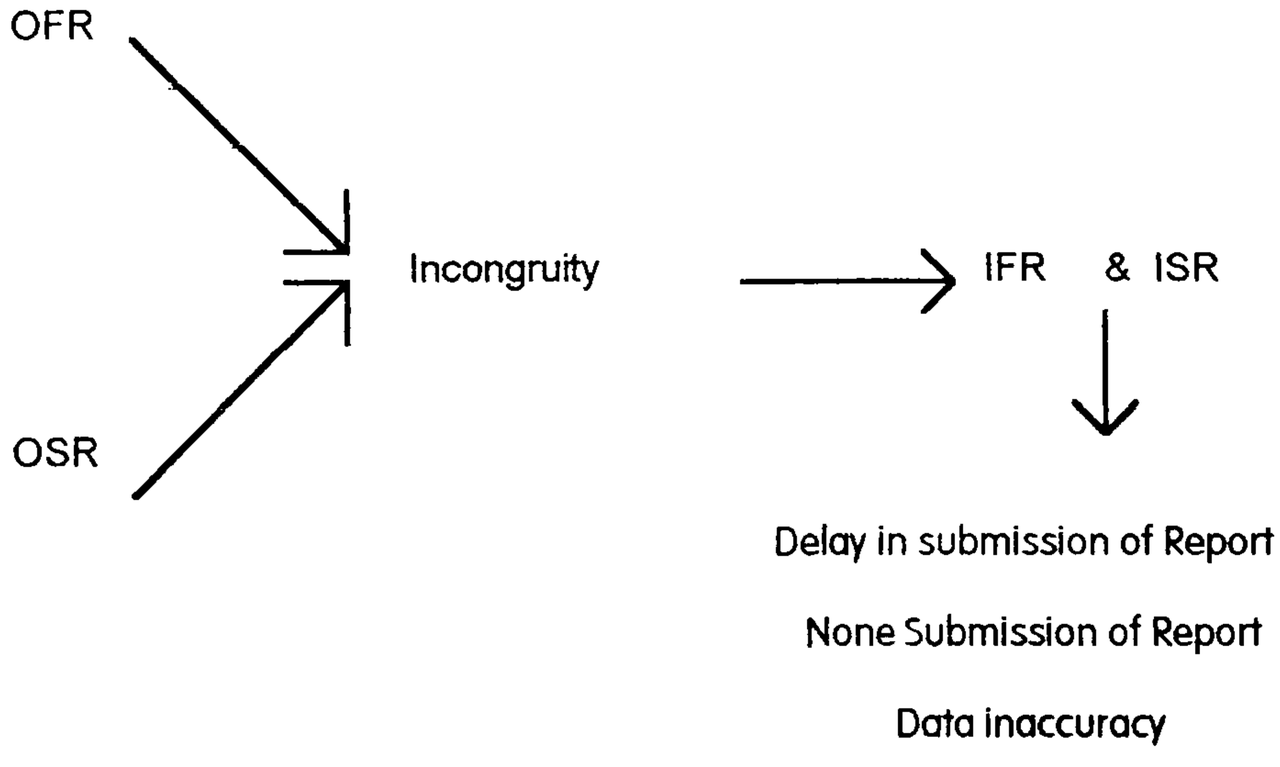
The introduction of family planning programmes in a predominantly Islamic and traditional community seems to undermine the hitherto important contribution of TBAs in providing safe delivery services in the community, which has a spill over effect on the MIS. Furthermore, services provided by VHWs and TBAs have gone unsupervised due to lack of transportation; submission of reports are delayed or not forwarded at all; data are often incomplete and the level of accuracy questionable.

On the other hand, one of the purposes for establishing a District Health Committee, was to provide support and facilitate activities of TBAs and VHWs; and mobilise the community to utilise and contribute to PHC programmes. This vital element was missing or weak in some district. A factor that could affect attitude of community members to health activities, in areas where community leaders are dissatisfied or have shown no interest in primary care activities. For example the case of the Bama District Head, clearly, it would be of no surprise if members of the community in the district are hostile to TBAs and other health workers.

However, it is not possible to discern from this study which communities are mostly affected; and whether there is a correlation between the non establishment of the District Health Committee, lack of input from the District Head and attitudes of community members to TBAs. Nevertheless, the lack of a District Management Committee and none participation of the District Head in the MIS, does create a vacuum in the MIS process.

It would be recalled that the input from the VHWs, TBAs, district and village heads was voluntary and no system of remuneration was established by government. Determination of its impact was not undertaken in this study, it is therefore impossible to tell, how this arrangement affected the MIS.

In summary it could be said that incongruity at **OFR** resulted in incongruity at **IFR** and **ISR**, this in turn led to declining contribution to the MIS; inappropriate behaviour; delay in submission of report or no report; data inaccuracy organisational ineffectiveness, manifested in delay or none submission of reports and ambiguity in data accuracy.



Health Facility Level

Data collection entailed transfer of data from forms submitted by TBAs and VHWs to the health facility forms. Secondly, data collected by health facility officers on services provided are transferred to stipulated health facility forms. In addition data on patients treated at a health facility are maintained in the clinic register.

It was difficult to discern whether these activities were carried out under stipulated standards, since there was no written standard. Similarly, since resource limitation impeded supervision of health facility officer by the M&E Co-ordinator, there was no effective mechanism for ensuring that forms were properly completed and that figures were comparable to actual services provided. This, coupled with the fact that forms were presumably complicated and numerous, all of which leads one to question accuracy of data submitted.

It was however, obvious that data analysis was not carried out at any of the health facilities. Data collected using the M&E forms and those contained in the register did not seem to be used or affect decision making. As presented in 6.2, only few health facilities had registers for 1992, an indication that perhaps the importance of such records was not appreciated. As one health officer stated, "I used the old register to wrap medicine for patients when it is full" No better use than this could possibly be made of an information storage apparatus.

Perhaps activities expected of managers at this level were limited to data collection, organisation and submission. If analysis and information use were expected it would have perhaps be reflected in the nature of training and resources provided. But then, the FMOH (1992), stipulates that quality of care and performance of services should be monitored at the health facility level; graphs showing trends and changes and accepted standard level displayed monthly. How this was meant to be accomplished without requisite training, skills, knowledge and resource is beyond my imagination.

Objective/resource incongruity further affected supervision of health facility officers and timely submission of reports. Transportation is a major enabling factor essential for effecting the MIS. In rural communities other means of communication apart from physically carrying information from one place to another was absent; many health workers cannot afford personal means of transportation; public transport system is poor and the MIS was not computerised. The only way to ensure that supervision, distribution and

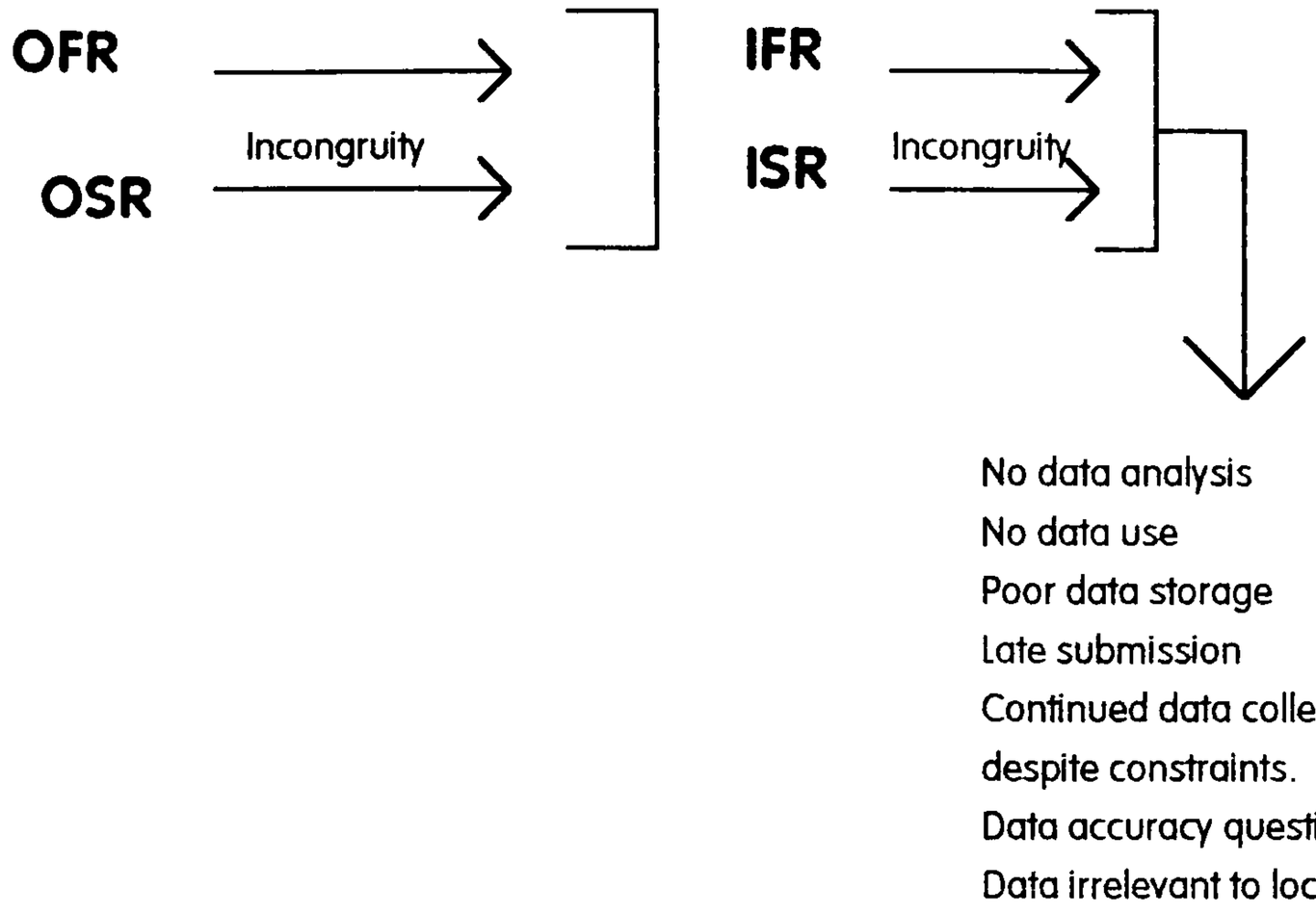
collection of reports were effected, was by ensuring an effective means of mobility, regardless of what that system entails, donkey, horse, camel, bicycle, motor cycle or a car.

Study results show a pervasive lack of effective system of mobility, with resultant effect on timely report submission, which are thus delayed for extended period of time. Experts however, emphasise the significance of timeliness as an important quality attribute for an MIS, due to the time sensitivity of information, which must be available to the right person at the right time. Horton, (1989), argues that information like living things pass through life stages, they are produced, refined, stored, organised and used, then eventually start to decline in utility.

Similarly, Levitan, (1982), suggests that information is dynamic and continuously changing, what is considered valuable information by a manager today, will sharply reduce in value in a month or a year and therefore loose its utility. No matter the level of accuracy and relevance of information, it is of limited utility arriving after the event.

On the other hand, despite the lack of understanding of the MIS process, training and resource, completion of forms continued to be carried out by health facility officers. Perhaps this was an indication of willingness to contribute to the MIS, another probable explanation is fear of retribution. As stated by the M&E officer, "if they did not submit report, they will not get their salary". The interplay of both factors cannot be ruled out in this context.

The effect of incongruity on the MIS at the facility level, are related to **OFR** and **OSR**, which affect **IFR**, depicted in lack of data analysis and use; poor data storage; accuracy of data not determined; report submission late and **ISR**, continued data collection despite constraints.



There is a generally held belief that workers in Nigeria and particularly public sector and rural communities tend to respect traditional authorities, superiors, elders and have the proclivity to display absolute obedience even in the face of hardship and minimal remuneration. A situation that had long been exploited by government officials and managers. A situation that tends to perpetuate varying degrees of incongruity identified in this study. This assertion is consistent with studies which suggest that public and private enterprises in Nigeria tend to be ineffective and unsuccessful due to poor management of human and material resources rather than failure of workers to produce.(Kilby, 1969; Udoji, 1973; Oloko, 1993).

According to Scott, (1992), culture can act as a form of control mechanism, where organisations rely on informal structure and individual participants with common norms and values that could orient and direct their contributions to the organisation. McGregor (1960), in his theory " Y ", posits that the need to work is inherent in human nature and external control and punishment are not the only means of accomplishing organisational goals.

This underscores the rather porous interrelationship between the organisation, the community and the individual as a member of the community and at the same time member of the organisation. Meyer, et .al (1987), argue that the reality and rights of organisational actors vary over time and place, and cultural rules give meaning to entities and activities, the existence and characteristics of actors socially constructed, organisational structures are not only influenced but constituted by the wider environment.

7.4.3: Effect at the LGA Level

Responsibility of the LGA PHC Department is basically to ensure effective implementation of primary care programmes in the community. Planning, management, organising, and control of PHC rest with the department. Structural incongruity identified in 7.3.2, include incongruity in the design of the MIS; data incongruent to local information needs; absence of local objectives; policies developed incongruent to those implemented; resources provided incongruent to stated objectives.

Water and Sanitation

Within the MIS framework, record of daily, monthly and annual environmental health activities co-ordinated at the health facility level are kept in Book HF 7, in three separate forms. Books from health facilities are submitted to the LGA Water and Sanitation Unit. Figures contained in forms HF 7 forms from all health facilities are transferred to Book 7 LGA monthly and annual records of environmental health activities, on two forms, one for monthly tally the other for annual summary. Book 7 LGA is subsequently submitted to the LGA

M&E Unit. At the period of this study which was May, 1993, transfer of 1992 data from health facility forms to LGA forms had just been completed and awaiting submission to the M&E Co-ordinator.

Findings indicate serious incongruity at **OFR,** MIS objectives not delineated; training not provided; data for local use not defined; unclear contribution to the MIS; and lack of essential resource.

Consequently, analysis was not carried out and collected data not applied for decision making. Close examination of completed forms revealed serious discrepancies in figures recorded from one month to another and annually. Data presented on tables below are derived from monthly and annual record of environmental health in the LGA, compiled in Forms 7LG-1 and 2. For expediency we are using records on latrines broken down into the four districts Tables 7.3 -7.9, show summary of report compiled by the Sanitation Unit LGA PHC for 1992.

These tables depict gross inaccuracy in the recording of data. For example monthly data for Bama district started off with 5,000 new latrines constructed in January, 30,000 functional and none was recorded as non-functional. In February 500 new ones were constructed, functional went up to 40,000. In March 486 constructed and figure for functional suddenly dropped to 4,532. This inconsistency is applicable to data reported for each district monthly and annually. In the case of Daraeljamal where data came from a single health facility, in January 150 latrines were constructed with 350 functional, for the rest of the year there was no new construction yet figures fluctuated either up or down, (table 7.9).

Table 7.3: Bama District Monthly Record of Environmental Health, Number of Latrines 1992

Months	Bama		Tandari		Soye	
	New	Funct	New	Funct	New	Funct
January	5000	30,000	0	0	1000	5,000
February	500	40,000	0	0	100	5,100
March	486	4,532	0	0	92	5,100
April	476	4,520	0	0	82	5,009
May	462	4,568	0	0	80	5,007
June	460	4,566	0	0	78	5,005
July	458	4,564	0	0	76	5,008
August	456	5,464	0	0	74	5,002
September	452	5,460	0	0	70	5,000
October	450	5,454	0	0	68	4,976
November	450	5,438	0	0	62	4,970
December	450	5,438	0	0	62	4,970
	10,100	120,004	0	0	1,844	60,147

Table 7.4: Bama District from Annual Record

Month	New	Funct	Not Funct.
January	5,000	35,000	0
February	500	45,000	0
March	578	9,632	0
April	558	9529	0
May	542	9,575	0
June	538	9,571	0
July	534	9,567	0
August	531	10,466	0
September	522	10,400	0
October	518	10,430	0
November	512	10,408	0
December	512	10,408	0
Total =	10,845	179,986	0

Table 7.5: Woloji District Monthly Records of Environmental Health

Months	Kumshe		Tarmuwa		Banki		Bembem	
	New	Funct	New	Funct	New	Funct	New	Funct
January	200	500	150	350	300	2,500	150	200
February	50	600	50	400	50	2,520	200	300
March	50	695	45	400	59	2,470	30	300
April	50	686	50	400	57	2,450	20	300
May	48	684	48	398	55	2,448	18	298
June	46	682	46	396	53	2446	16	296
July	44	680	44	394	51	2,444	14	294
August	44	678	21	391	47	2,440	14	292
September	44	675	51	390	47	2,438	14	292
October	40	670	50	386	44	2,430	15	290
November	40	670	51	386	40	2,430	10	288
December	37	670	45	383	40	2,428	10	284
Total =	493	7390	501	4324	543	26,944	361	3234

Table 7.6: Woloji District Annual Report

	New	Funct.	Not Funct
January	900	5,318	0
February	190	3,870	0
March	184	3,865	0
April	177	3,836	0
May	169	3,878	0
June	161	3,810	0
July	153	3,812	0
August	156	3,801	0
September	156	3,795	0
October	109	3,776	0
November	141	3,774	0
December	132	3,765	0
Total	2628	47,300	0

Table 7.7: Gulumba District Monthly Environmental Report

	Gulumba		Kashimiri		Walasa		Amchaka	
	New	Funct	New	Funct	New	Funct	New	Funct
January	100	150	50	100	50	108	50	60
February	10	1500	5	105	5	1080	2	62
March	10	1500	5	105	3	1087	2	60
April	10	1500	5	103	3	1085	2	56
May	8	1498	3	101	2	1083	1	54
June	6	1496	2	100	1	1081	1	52
July	6	1494	2	98	1	1079	1	50
August	6	1492	2	96	1	1079	1	50
September	6	1490	2	96	1	1075	1	50
October	6	1488	2	94	1	1072	1	48
November	6	1486	2	90	1	1072	1	40
December	6	1482	2	79	1	1070	1	35
Total =	180	16576	82	1167	70	11971	64	617

Table 7.8: Gulumba annual Record for 1992

Month	New	Funct	Not Funct
January	220	418	0
February	20	2,765	0
March	20	2,752	0
April	20	2,744	0
May	14	2,716	0
June	10	2,729	0
July	10	2,721	0
August	10	2,717	0
September	10	2,711	0
October	10	2,702	0
November	11	2,688	0
December	10	2,666	0
Total =	365	30,329	0

Table 7.9: Daraeljamal Monthly Record of Environmental Health, 1992

	Monthly		Annual		
Month	New	Funct	New	Funct	Not funct
January	150	350	150	350	0
February	0	400	0	400	0
March	0	449	0	449	0
April	0	445	0	445	0
May	0	443	0	443	0
June	0	441	0	441	0
July	0	439	0	439	0
August	0	437	0	437	0
September	0	434	0	434	0
October	0	432	0	432	0
November	0	430	0	430	0
December	0	426	0	426	0
Total =	150	5,126	150	5,126	0

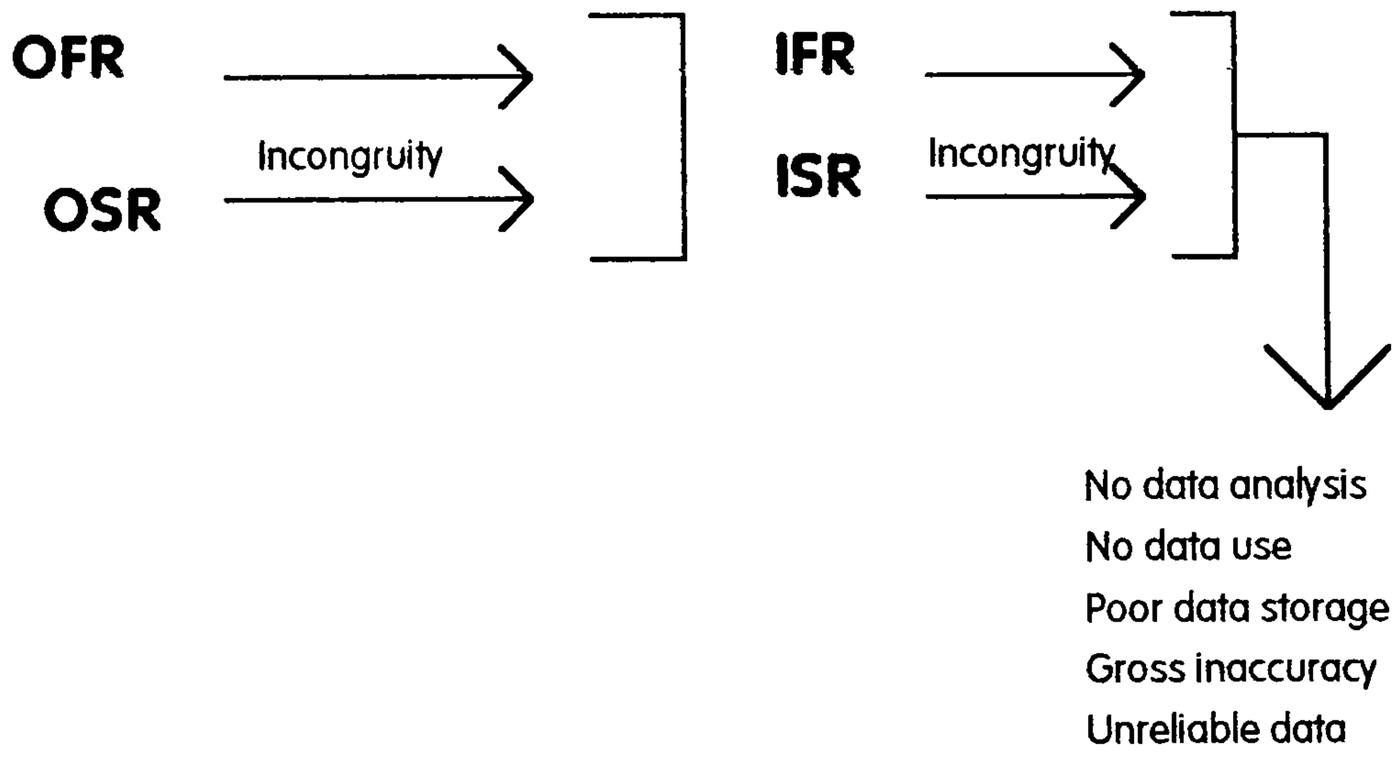
Source: Bama (1992), Book 7 LGA for Environmental Health

Also, looking at data for Gulumba District, 100 new latrines were dug, 10 in February, number of functional latrines went up from 150 to 1,500, and did not change until May, when the number changed downward to 1,498, despite the fact that number of new ones had changed from 10 to 8. Furthermore, in the annual report, while number of new latrines dug remained low number of those functioning seemed to multiply from what was entered in the monthly reports, giving outrageously high figures. On the other hand, in Kashimiri District as new latrines were dug the number of functioning ones went down.(tables 7.7 -7.8).

These findings have far reaching implications, by providing a faulty picture of environmental health services in the LGA. It is on the basis of such data that

national reports and statistics are compiled. Decisions based on such information are not only faulty but dangerous, affecting other PHC programmes in the LGA and the health of the population. For example since the number of latrines in the community was indication of improved human waste disposal, therefore in Gulumba District with an estimated population of 10,000, and a recorded 30,329 latrines, it implies that each individual had 3 latrines. Which far exceeds the national objective that 60 % of the population would live 50 metres of a pit latrine.

A sanitation effort that would lead to reduction in incidence of water borne diseases. Clearly, measurement of environmental health activities in the state based on such figures demonstrates the need for caution in application of numerical values as measurement of outcome of PHC programmes in rural communities.



Theorist argue strongly on the importance of accuracy of data for any information system to serve its purpose and all quality assessment activities depend on the availability of accurate and relevant information. Martin et. al.(1992), argue that information should be accurate for the purpose serves,

wrong and misleading information have adverse implications and are worse than no information. Inaccurate data processed give inaccurate and unreliable information, leading to the concept of "GIGO", garbage in, garbage out. Furthermore, Sollenberger, (1968); Kast et. al.(1985); Caputo, (1988); Lucey, (1993), argue that operational level managers require relatively comprehensive and accurate information.

The Unit Co-ordinator affirmed during an interview that forms were accurately completed, validated by simply scrutinising the forms. However, when discrepancies in figures was pointed out, it was proffered by an officer in confidence that the unit was involved in the digging of boreholes, latrines and wells for which substantial amount of money was being provided. The number of these facilities provided would determine the amount of money given. This could be one explanation for the discrepancy in figures entered and possibly for the lack of proper record keeping in the unit. However, if there was clear objectives for which data were required, perhaps the importance of accuracy would be appreciated.

Another possible explanation is the lack of appreciation of implications of inaccurate data on the well-being of the community, which perhaps adequate supervisory mechanism which was lacking would have helped to detect and ameliorate such problems. Furthermore, this could possibly be a case of personal interest superseding those of the organisation, since there was a tendency not to keep records and figures were exaggerated, could it be what Morgan (1993), from a political perspective, views as the reality of the work place where people bring to the organisation personal aspirations, visions, private attitudes, values, beliefs and commitments from outside, that shape their behaviour in relation to job and career. Some of these interests could be determined by forces within the socio-cultural environment, which shape peoples' behaviour in the organisation.

There is no denying importance of national objectives being monitored under this unit, which tells the FMOH, the number of boreholes and latrines in each community, predicated on figures on forms, regardless of the level of accuracy. Which are however, of significance since information on the state of health of the population are hence derived. Let us take for example the objective which states 40% of the population would live within 200 metres of potable water. Assuming that all villagers obtained water from that source, would it preclude the outbreak of Cholera, Guinea Worm and other water borne diseases?

There is evidence to suggest that water borne diseases have continued to ravage the country. For example, in 1991 there were 36, 196 cases of suspected Cholera with 4, 293 deaths, involving 96 LGAs. Borno State had the highest number of cases of 16, 596(FMOH, 1991). Similarly, between 1987 and 1988, there were 653,620 cases of Guinea Worm reported, Borno had 5, 246. While between 1988 to 1989, there were 643, 765 cases, Borno had 9, 374.(FMOH, 1991).

Perhaps the system for monitoring these objectives is faulty. Empirical results from this study that would be presented in 7.4.3, clearly demonstrate the lack of correlation between figures submitted, which seem rather arbitrary and perhaps, therefore the actual numbers of latrines and boreholes in the community. A strong indication that numbers claimed on paper must be treated with great caution. However, policy makers and managers depend to a greater extent on such data. This perhaps provides one probable explanation to the intractable problem of water borne and infectious diseases in communities. Furthermore, the Water and Sanitation, the Guinea Worm and the Disease Control Units had no established mechanism for information sharing on these problems or to examine data collected.

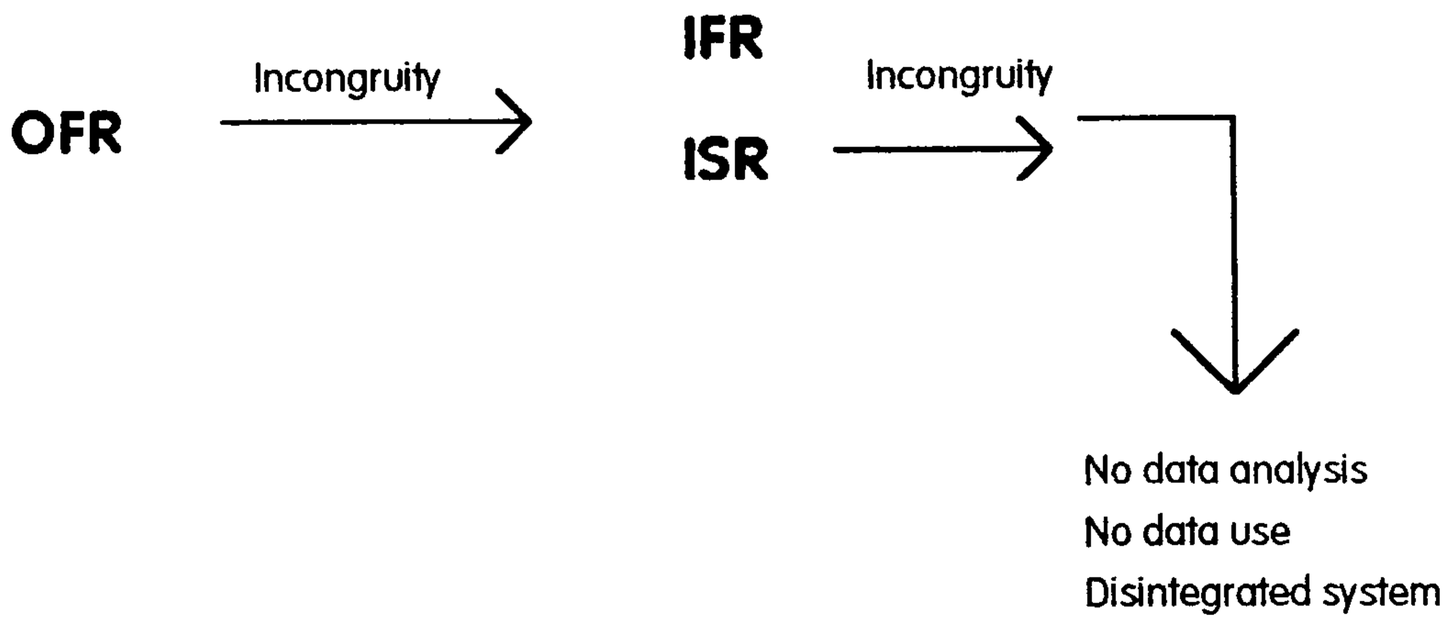
One major constraint for the MIS, from data analysis is its distance from the community it is meant to serve. Health workers and the community in general

have not identified with the information system, its effctiveness is thus far fetched since it holds minimal meaning in the context within which it exists.

Expanded Programme on Immunisation and Disease Control.

Research findings from this unit are consistent with those from other units and point to incongruity at **OFR**. Forms for recording immunisation activities were adequately provided; documented guidelines for the MIS was not available; objectives not delineated; training and materials for data processing and analysis were lacking; local data requirement not defined. ; absence of essential resources; and operation of a parallel information system

However, graphic presentation of some data on the wall, albeit crude is perhaps an indication that with adequate training data processing and analysis might be carried out. Furthermore, data derived were not integrated in the MIS. Consequently, a comprehensive understanding of health situation in Bama cannot be arrived at from the current structure of the MIS. A disintegrated MIS only provides partial information.



Perhaps what is more relevant at this level, are data on the incidence and mortality from specific childhood diseases. Community health workers and managers need an appreciation of how services are affecting the population rather than being burdened with the collection of immense amount of data that

provides little information to them. For data collection to have meaning to data collectors, there must be clear definition of the needs for data based on local problems.

Maternal / Child Health (MCH) and Family Planning Unit

Analysis in 7.3 2, points to incongruity at **OFR**, in which objectives, procedures and guideline were not defined; local data need not determined; materials for data processing and analysis lacking; training not provided; and basic resources were not available. This was the only unit that attempted what might be considered data analysis from reports submitted despite the lack of training. Predicated on information thus derived, progress reports are submitted to the LGA Council. It is on this basis that requests for changes and improvement in services are made. However, available records only date back to August 1992, previous records were not kept, resulting in partial data for analysis.

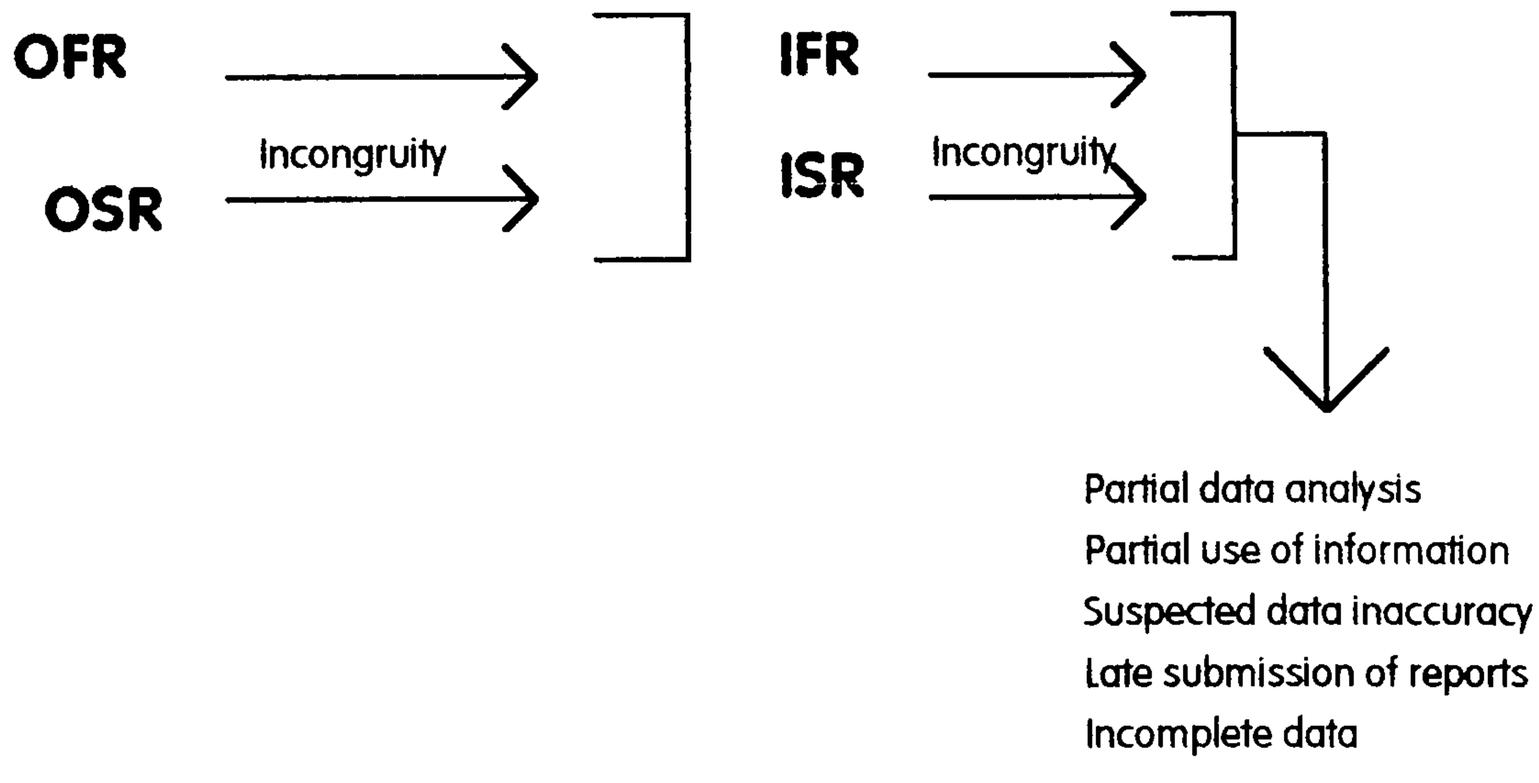
Despite the limited data, it provided useful information which was utilised. The only probable explanation for this attempt at data analysis and use could be the officers qualifications a Registered Nurse /Midwife, a trained Community Health Officer, coupled with many years of experience. Again an indication that perhaps more effective involvement in the MIS is possible with adequate training.

Examination of the limited available records suggest accuracy in calculations and consistency between figures on forms and those used for progress report, original sources of data were not available for comparison. Nevertheless, doubts were expressed by the Co-ordinator regarding accuracy of data submitted from the village and facility levels, particularly on services provide by TBAs. Iterating problem reported by health facility offices, that many TBAs were

not submitting reports due to stigmatisation by neighbours, diversion or misuse of drugs and other supplies and reluctance to remit money realised from sales.

Data from TBAs on services provided form a major source of information for this unit, which was clearly under serious threat. Perhaps the lack of established means of remunerating TBAs and VHWs, for services provided, could be a disincentive, that impinges on their commitment. In the sense that these workers would prefer to uphold the shared interdependence, and interrelationship and mutual concern that pervade rural life.

It is important to take cognisance of influence of shared values, beliefs, attitudes, norms and ideologies within social collectivity on innovation and formal organisation. Furthermore, the effectiveness of voluntary workers, particularly, those with minimal education, within communities where receptivity to orthodox medical practices is being nurtured requires adequate supervision and a great deal of incentive, commitment and the support of traditional leaders and senior health officials. All of which culminated in some data analysis; some use of information; suspected data inaccuracy; late submission of reports; and incomplete data.



Essential Drugs Unit

Sources of incongruity are at OFR and focus on: lack of MIS objectives; lack of understanding of the MIS process; existence of a parallel information system; and data irrelevant to local needs. Basically, data was collection was limited to quantity of drugs available, sold and quantity of expired drugs in health facilities. As a result there was no relationship between drugs purchased, distributed and how they were used, nor the actual number of people that are able to purchase needed drugs. Furthermore, there was no mechanism for relating drugs distributed to health facilities and diseases treated. Again this unit and that of the disease control unit did not share information and operated separate information systems.

Examination of few records and outcome of interview with the Unit Co-ordinator, indicate two most commonly purchased drugs were chloroquin and penicillin. Understandably, being a malaria endemic area chloroquin is widely used. However, no explanation was proffered for the increase purchase and use of procaine penicillin in the area, since there was no record of diseases treated with various drugs at the office, which was not required under the DRF scheme.

Curiosity on why so much procaine penicillin was purchased with no system of monitoring its dispensation by health workers, with limited knowledge led to the collection of data to ascertain the quantity of antibiotics dispensed at the various health facilities. I developed forms for data collection and distributed to PHC facilities, to determine the use of procaine penicillin in particular and other antibiotics. Existing data on commonly treated diseases at the facilities was equally obtained and examined.

Table 7.10 shows the quantity of antibiotics distributed to health facilities from 1988 to 1992. Gulumba Maternal Child Clinic recorded 3,150 vials far in excess of any other health facility. Table 7.11 shows number of cases treated

with procaine penicillin in 1992, Kashimiri reported 3,887 cases and Gulumba clinic 3,630 cases, which seem exceedingly high compared to other health facilities.

However, examination of diseases treated with penicillin at Gulumba clinic for example, presented on table 7.12, shows that 990 cases were treated for allergic reaction, 330 for infected wound while 2,620 was others. However, earlier data from 1987 (table7.13), and from other health facilities show that allergic reaction was not a problem in the area. Furthermore, from a medical point of view procaine penicillin is often a cause of anaphylactic reaction and could not under any circumstance be appropriate treatment for allergic reaction, it would definitely exacerbate situation and possibly lead to death. This finding clearly suggest an inherent problem in the use of antibiotics and in the reporting system.

Similarly, data on table 7.12 shows that in Kashimiri, 1,266 cases of pneumonia were treated with procaine penicillin in 1992, while 1,202 cases were grouped under other. Again examination of 1987 data shows that there were only 96 cases of pneumonia treated in the same clinic, prior to implementation of the DRF. Scheme. If cases of pneumonia have gone from 96 to 1,266 in a community when health care services are supposedly more accessible, available and improved, it is therefore a serious cause for concern. Indicating that perhaps procaine penicillin was over used and thus bacterial resistance had developed, and the same cases are repeatedly being treated. Another more probable, yet cautious explanation could be drugs are not necessarily used for treatment as claimed, and arbitrary figures are provided.

Incongruity at **OFR**, resulted in a disintegrated MIS; accuracy of data dubious; no data analysis; no use information.

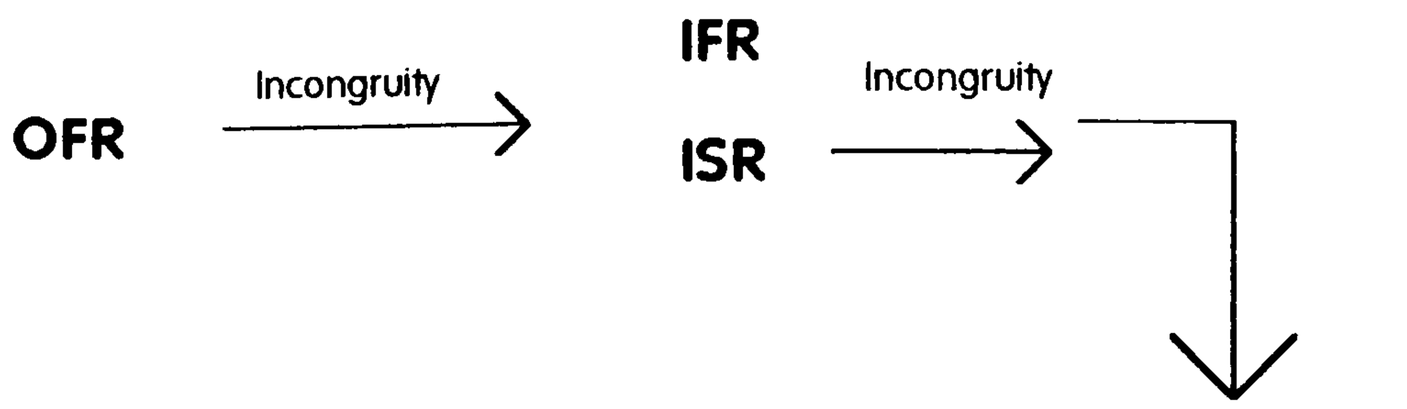


Table 7.12: Antibiotics Received by Health Facilities in 1992

Procaine Penicillin	1988	1989	1990	1991	1992	Totals Vials	Health Facility
	600	550	650	750	600	3,150	Gulumba MCH
	281	125	5	150	200	761	Soye Dispensary
	0	0	0	141	250	391	Kumshe Clinic
	0	0	0	200	300	500	Banki Dispensary
	0	0	0	300	350	650	Kashimiri Clinic
	0	0	0	0	100	100	Bama Dispensary
Total =	881	675	655	1,541	1,800	5552	

Table 7.13: Cases Treated with Procaine Penicillin in 1992

Month	Gulumba	Soye	Kumshe	Banki	Kashimiri	Taramuwa
January	540	40	50	97	462	36
February	300	30	42	49	120	37
March	400	20	65	68	310	33
April	200	22	55	89	180	38
May	500	30	35	38	220	41
June	370	11	40	72	377	27
July	300	5	44	43	348	23
August	400	3	26	108	417	25
September	250	4	32	19	593	38
October	150	6	50	71	411	40
November	100	7	48	64	290	31
December	120	12	60	59	159	28
Total =	3,630	190	547	777	3,887	395

Table 7.14: Diseases Treated at Health Facilities with procaine Penicillin

Disease	Soye Dispens.	Kashimi . Dispens.	Kumshe Clinic.	Taramua Clinic	Gulumba Clinic
Abcess				13	
Accident		78			
Allergic Reaction					*990
Boil	50		108	81	
Whitlow				21	
Conjunctivitis				7	
Infected Wound			144		300
Injuries				51	
Mastitis				14	
Measles	49	99			
Otitis Media	45			39	
Pneumonia		**1,266			
Skin Disease			128		
Sepsis			111		
Sexually Trans. D.	46		55	62	
Upper Resp. Tract. Inf.				92	
Other		**1,202			**2,620
Total =	180	2,605	646	380	3,910

These findings, albeit serendipitous have serious implications for efficacy of the primary health care system in Bama and the MIS in particular. It is not enough that a DRF Scheme is operating in the community, the usefulness of the scheme can only be assessed through understanding of availability, affordability and the proper use of drugs and its effect on the health of the population. Consequently, if more members of the community are receiving treatment for a particular disease that hitherto was not problematic, data collected by the DRF unit ought to be able to detect such changes. Findings from this unplanned exercise, clearly demonstrate a potentially serious problem could remain undetected in the community and undermine PHC efforts.

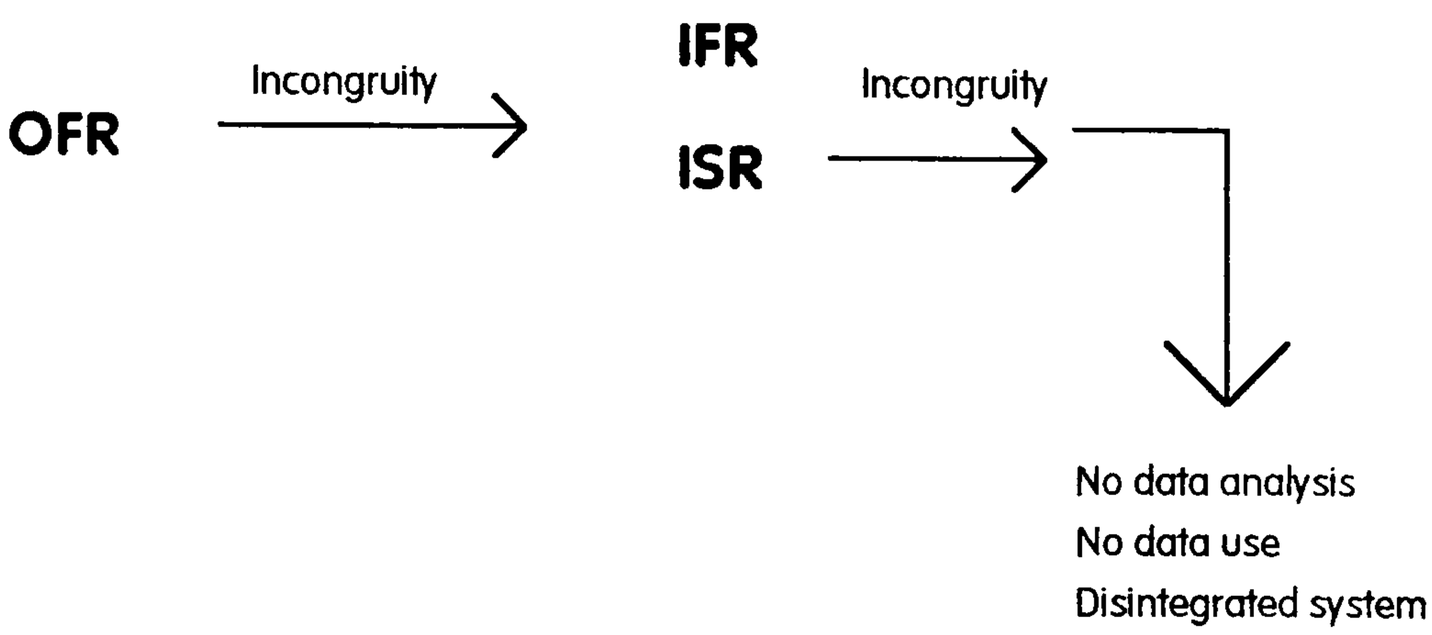
Table 7.15: Number Registered in Health Facility in 1987

Disease		Bama Dispensary.	Tandari Clinic.	Soye Clinic.	Dara.el.jam Clinic	Kashimiri Dispensary	Gulumba. Dispensary
Ankylostomiasis		15	38	58	100	97	83
Arthritis		182	92	121	92	112	106
Bronchitis		284	190	198	306	156	288
Burns scald		55	18	38	66	41	18
Boil & Abscess		132	116	104	336	89	189
Cough		334	305	221	505	296	137
Conjunctivitis		323	296	313	558	416	125
Constipation		65	52	69	95	90	82
Cerebro Spinal Meningitis		127	195	56	322	47	106
Chicken Pox		8	0	0	4	8	2
Dysentery		58	107	182	156	85	214
Diarrhoea		121	146	120	101	136	183
Eye Disease		198	15	8	56	0	91
Gastroenteritis		357	218	218	230	211	320
Gonorrhoea		135	238	82	84	103	64
Lumbago		89	16	52	127	81	113
Lymphadinitis		32	8	21	16	32	15
Measles		349	195	226	322	218	213
Malaria		277	407	387	470	392	380
Otitis Media		252	182	258	345	220	75
Pneumonia		118	93	108	152	96	187
Rheumatisim		89	22	35	48	16	37
Chronic Rheumatism		100	82	87	98	75	107
Tetanus		3			3	4	0
Syphilis		0	0	0	0	0	0
Syphilis		0	0	0	0	0	0
Scabies		98	0	42	53	36	0
Schistosomiasis		12	42	87	182	96	201
Guinea Worm		33	96	122	436	109	328

Guinea Worm Control Unit

Findings are suggestive of structural incongruity at **OFR**. This unit operates under a parallel information system, data collected are not integrated in the main MIS; objectives not defined or appreciated; and local data needs not delineated. Despite its limited scope, record keeping prior to 1991 was abysmal,

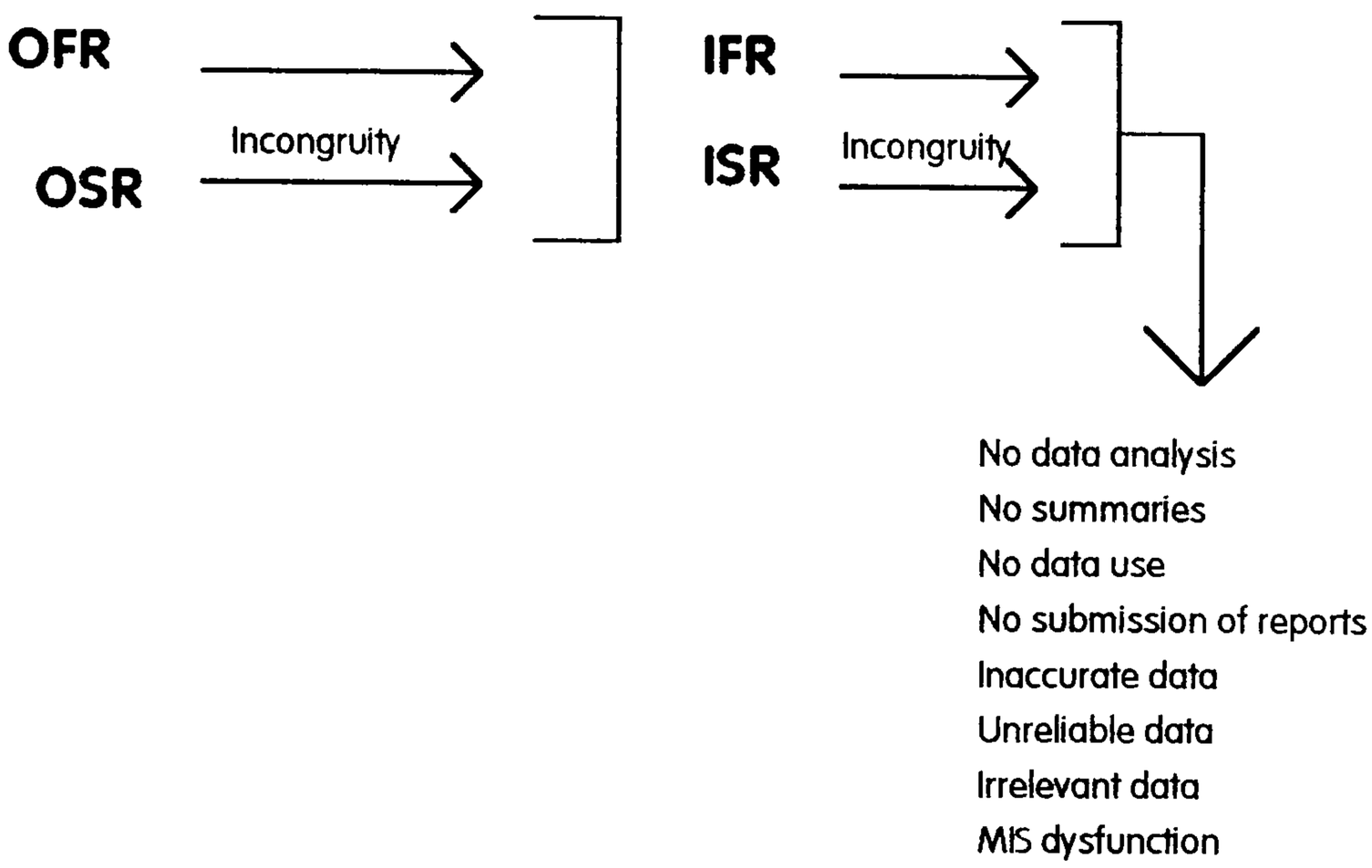
reported the co-ordinator. Twenty villages are affected, with a total of 1,335 recorded cases from June 1991, presented on table 6.7. However this number provides only the number of Guinea Worm Cases and nothing about the outcome of treatment. Furthermore reliability of data submitted is difficult to ascertain since there was no established mechanism for ascertaining accuracy. Data analysis was not carried out and obviously no use was made of data collected.



Monitoring and Evaluation Unit

Results of findings, sources and effect of incongruity on other units culminate in an understanding of the M&E unit, as the core of the management information system, activities within other units would inevitably impact on the MIS. In addition, results of this study suggest serious incongruity at **OFR** and some at **OSR**. Objectives, procedures and guidelines not explicit; MIS process was not understood; inadequate training; lack of basic materials for data storage and processing; lack of essential resources; data from over 50% of functional units not integrated; data from related PHC systems not integration; unconducive work environment; and inadequate systems of communication. The most serious effect of incongruity presented in 7.3.2 was the lack of understanding of the MIS operations and process by the M&E Officer responsible for the MIS.

The consequence was a management information system in abeyance, absolutely ineffective, and of minimal utility within Bama PHC system. Reports from health facilities and other units were simply stored; there was no data analysis; therefore no use of information; no feedback to health facilities; data from 50% of units within the PHC Department not integrated in the MIS; and those from three main organisations in the LGA not included. From the effect of incongruity in related units contributing to the MIS, accuracy and reliability of data emanating from the system are obviously not possible.



It is obviously difficult to regard this as an integrated management information system or even a management information system. Albeit there is no water tight definition, it is conceived as possessing the capacity to integrate information from various sources, which provides relevant, accurate, timely, understandable information for managers at various levels of the organisation(Hicks; 1984; Dixon, 1990: Bocchino, 1972; Lucey, 1991). It provides the organisation with a mechanism to manage, by providing the right information which allows for decisions to optimise the various resources toward

attainment of organisational goals. Information thus derived would be able to help health facility supervisors, unit managers, PHC co-ordinator in understanding health problems and health needs of people in the community, assist in determination of health resource utilisation and needs; provide information for planning, decision making and management. The current MIS in Bama does not meet any of the above attributes.

Of greater consequence was the lack of monitoring and evaluation of PHC activities, since there was no information on which that could be carried out. Clearly, the most significant individual in the operation of the MIS did not understand what the purpose of the system was and had no training or clear understanding of its operations. It would therefore be irrational to expect effectiveness from the system. Furthermore, if there were locally set objectives for the MIS, perhaps that would have triggered the need for some data analysis in the unit. Such incongruity at the core of the Bama MIS renders the system dysfunctional.

Traditional rational theorists purport that structure, rules, regulations and procedures provide rational means of attaining organisational goals. The political perspective often considers such arrangements as products and reflections of a struggle for political control and power (Morgan, 1993). Organisational activities are determined by distribution of scarce resources, power is inherent in the control of resource. This theoretical perspective came closest to addressing some of the not so pleasant activities in organisations, for example the satisfaction of personal interest by political administrators rather than organisational objectives, and the conscious application of organisational resource to unviable projects. The control of resources by local politicians seem to be the root of many of the other incongruity, which as indicated by findings in this study are related to factors in the wider society and cannot be completely explicated by political factors alone. At another level, salary structures are inconsistent with responsibilities expected of workers, coupled with equal

remuneration for committed and non committed workers surely, affect peoples' behaviour in the organisation.

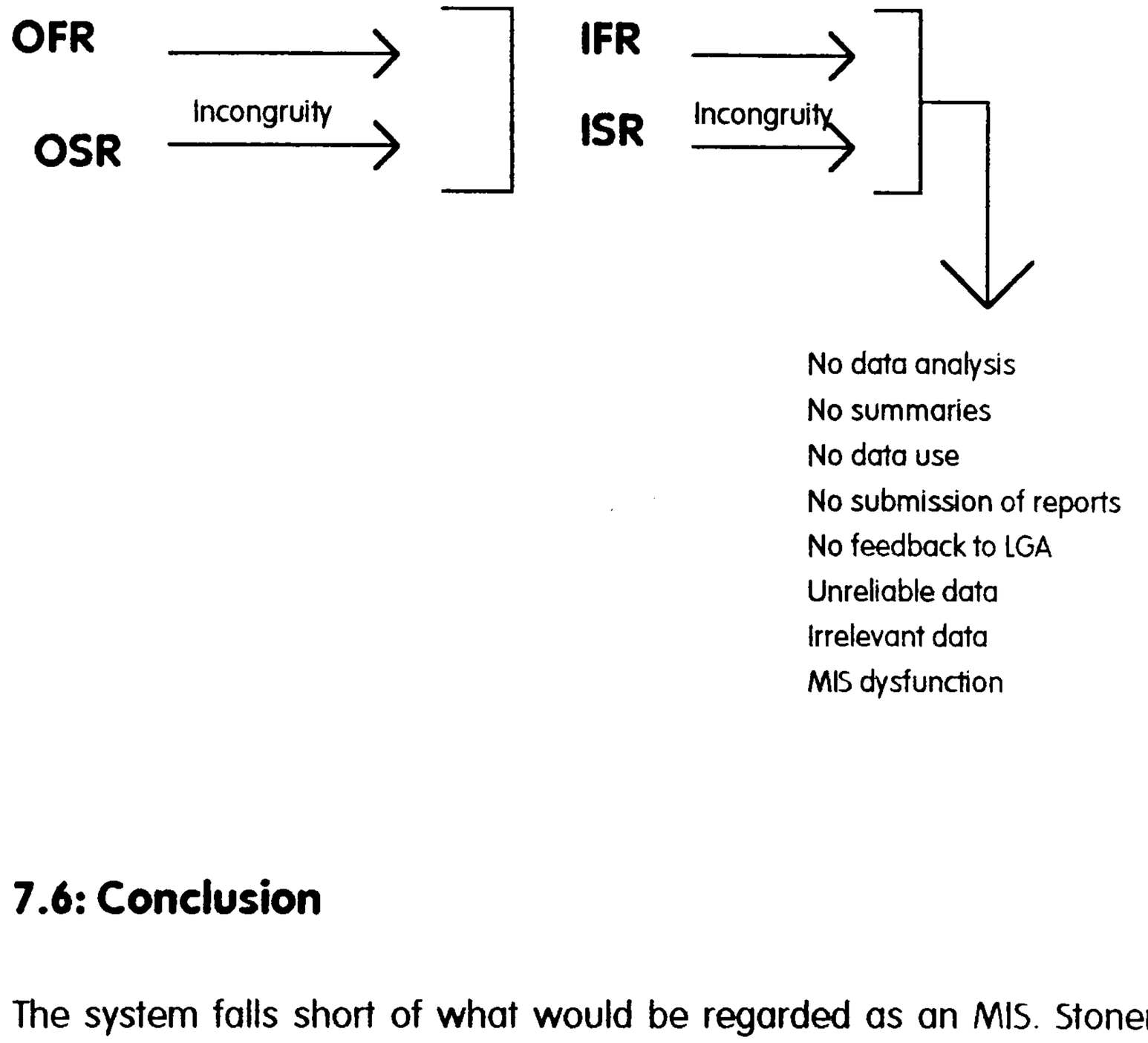
Brusson, (1989), that suggests that a political organisation had no need to produce co-ordinated action, its only basis for legitimation was its reflection of inconsistent norms. It represents a variety of ideas, demands and satisfies the expectations of diverse groups in its environment. On the other hand Starbuck,(1982), argues that organisational structures and technologies correlate inconsistently and weakly because societal ideologies constrain their general properties and organisations can choose how they satisfy these constraints.

7.5: Effect of Structural Incongruity at State Level

Research findings in 6.5 and discussions in 7.3.3, obviously, indicate being a higher level within the MIS and health system did not obviate existence of incongruity within the system but rather underpins its widespread. Similarly, structural incongruity focus at **OFR** and **OSR**, with its main source on discrepancy between policy development and implementation, demonstrated by the lack of resources for attainment of MIS objectives; objectives and procedures not clear; inadequate training; resources inadequate; lack of political commitment; disintegrated system; and poor working condition.

Culminating in lack of technical support to the LGAs; no data analysis; and no data use. In addition, dysfunction at the LGA level would undoubtedly impact on the state MIS, since submissions from the LGAs for 1992-1993, were very poor, only 7 of the 21 LGAs had made at least one submission for 1992, Bama LGA had made no submission to the State. Due to the limited number of reports submitted by the LGAs, no submission was consequently made to central level,

nor was there feedback to the LGAs. Similarly, data from the State Expanded Programme on Immunisation Department and other relevant departments were not integrated. In this regard it would be safe to say that the MIS at this level was equally dysfunctional, with resultant consequences at the federal level.



7.6: Conclusion

The system falls short of what would be regarded as an MIS. Stoner et.al (1992), view an MIS as a method of providing management with accurate and timely information necessary to facilitate effective decision making, planning, control and operational processes in the organisation. It is purportedly meant to provide information on the past, present and projected future on relevant events within and outside the organisation. An MIS therefore involves planning for data, collection, organisation, management and analysis of data; timely provision of relevant, accurate and understandable information. An effective MIS is designed in relation to information needs and objectives of the organisation. However, there was no clarity on objectives of the Bama PHC MIS. Current objectives and information needs are more relevant to the needs of higher levels within the health system, geared toward strategic planning and policy making rather than local management information needs.

This seems to be a major source of incongruity in the PHC MIS. It is equally difficult to reconcile objectives articulated and how they could be attained without appropriate training and required resources, a problem reflective of the system at local and state levels, as a result the usefulness of the MIS is perhaps yet to be appreciated. However, while the none delineation of objectives was organisationally derived, the lack of resources and training among other identified inconsistencies were however, more due to factors in the wider social structure of the society as mentioned earlier, that seem to generally impinge on organisational performance in Nigeria.

The MIS however, if appropriately designed, could serve the purpose of collecting data from all functional units and health facilities as it does, able to organise and analyse data and make information available to those who need it. From such a system it would have been possible for all unit co-ordinators to access information about their unit and other units; health facility officers could have been able to access information about any other health facility; information on performance of each health facility would have been possible. It needs to be borne in mind however, that the MIS is part of the organisation and is influenced by other factors within and outside the organisation. Therefore if the management of the organisation is ineffective and inefficient, it would invariably be reflected in the information system.

Research results and analysis strongly point to the inappropriate resource investment as one major cause of incongruity in the MIS. Politicians at the LGA and state levels were more concerned with execution of capital projects, while rudimentary materials were lacking. By implication if objectives were clearly delineated and adequate training provided, incongruity between objectives and resources for their attainment would still have the potential of impacting negatively on the MIS. In the next chapter the model of incongruity is further developed.

CHAPTER 8

TOWARD A MODEL OF ORGANISATIONAL INCONGRUITY

8.1: Introduction

This study assessed quality of PHC information system in Nigeria, the structure, process and outcome quality assessment models were used as guide for data collection, presentation and analysis in chapters 5 to 7. Research results presented in chapter six and data analysis in chapter seven, indicate persistent structural incongruity, with adverse effect on the information system. Difficulty in applying existing conventional theoretical constructs to explicate research findings resulted in conceptualising an organisational model of incongruity.

This conceptualisation by no means mitigates usefulness of other theoretical constructs and their possible utility in varying contexts. Indeed a great deal is learnt from the various theories, for example, a perspective that emphasises the political nature of organised collectivities, relating to power and control of resources in organisations provides some explanation to serious ambiguity surrounding the continuing struggle for control and distribution of PHC resources by local administrative bodies, inter and intra organisational conflicts among various senior health workers.

Similarly, organisational activities are inextricably related to events in the wider social context, with due consideration of the impact of prevailing societal norms, values, expectations, ideologies on the organisation and individuals within it. In this respect application of the cultural perspective as a way of understanding organisations proves quite useful and appropriate. Due cognisance is given to the significance of certain behaviour of individuals within organisation that may be due to the effect societal values.

As Morgan (1993), pointed out, a socially integrated individual is a mode of transferring societal values and expectations to the organisation, consequently both the organisation and workers are affected by events within the wider social structure. This chapter expatiates on the organisational incongruity model presented in preceding chapter.

8.2: Sources of Incongruity

Major sources of incongruity within the Bama PHC information system were identified in chapter seven, to a great part are related to inconsistencies in what I termed organisational functional responsibilities **(OFR)** and social responsibilities **(OSR)** which affect individual functional responsibilities **IFR** and social responsibilities **ISR**. Incongruity in **OFR** and **OSR**, resulted in incongruity in **IFR** and **ISR**. Identified sources of incongruity are summarised on tables 8.1 to 8.3 and on table 8.4 identified effect of incongruity are presented, derived from analysis in chapter seven.

Table 8.1: District and Health Facility Incongruity at OFR

Design of the MIS inconsistent with local information needs.
National objectives defined and those for local level not delineated.
Tools for data collection designed to provide data for national objectives.
Data collected not relevant to local information needs
Timetable for data collection determined central level
Training for operators of the information system inadequate
Community input inadequate.

Table 8.2: LGA: Incongruity at OFR and OSR

Policies inconsistent with those implemented
Control of PHC resource by external body
Lack of basic working materials
Training on the MIS was abysmal
MIS objectives at the LGA ambiguous and Local data needs not delineated
Number of staff with required skills and knowledge abysmal
Procedures and guidelines for the not existing
Disintegration of data sets from PHC functional units
Data sets from related health organisations not integrated
Weak system of community mobilisation
Unconducive work environment
Poor level of political support

Table 8.3: State Incongruity at OFR and OSR

MIS objectives not clear
Inadequate training
Resources inadequate
Lack of political commitment
Disintegrated system
Poor working condition

Table 8.4: Effect of Incongruity Summarised

Health Facility	LGA	State
No data analysis No data use Poor data storage Late submission of reports Data accuracy questionable Data irrelevant to local needs Continued data collection in the face of constraints	No data analysis No data use No summaries No submission of reports Data inaccurate Data irrelevant Data unreliable No feedback to health facilities MIS ineffective MIS dysfunctional	No data analysis No data summaries No data use No submission of reports Data inaccurate Data irrelevant Data unreliable No feedback to LGA MIS ineffective MIS dysfunctional

For further illustration, sources of incongruity are pulled together and subsumed under two broad categories, policy and design, (figure 1), derived from the presupposition that systems incongruity was either policy or structure based. Design of the information system was clearly inconsistent with the organisational level within which it operated. From all indications a system was designed at the strategic level of the PHC system and imposed on the operational level. In chapter one discussions on the information needs of the various levels of management, strategic, tactical and operational, are clearly at variance due to the nature of decisions made at each level.

Within the PHC hierarchy, federal state and local levels, by virtue of stipulated responsibilities, it could be argued that the federal level was involved mostly with strategic decision making, that had long term implications for future of the national PHC system. On the other hand, local PHC would clearly be involved with actual implementation of PHC programmes in communities and

deals more with operational issues. Therefore systems design and information requirements for the two levels must naturally reflect these levels of responsibilities.

This in turn reflects the definition of structure adopted for this study in chapter two as comprising abstract and tangible elements utilised in the transformation process; formal and informal relationships among people performing various tasks; and the technologies applied. Implying structure to address the organisation of work, resources, skills, knowledge and the tools employed in execution of tasks. Examination of sources of incongruity for community, LGA and state information systems, presented on tables 8.1 to 8.3, are mostly structural.

Similarly, policies guide organisational operations, structure, strategies and objectives, inconsistent policies would invariably affect these organisational elements. In this case while there was no existing national health information policy, those established for effecting the PHC information system were not implemented as stipulated at local level. This again highlights problem with central control of major decisions. The information system is obviously not part of the community in which it operates.

The effect was understandably organisational ineffectiveness and dysfunction depicted by the production of inaccurate, irrelevant and untimely information. This becomes a vicious cycle since information so derived and applied, result in ineffective policy, decisions, planning and management, affecting information systems at local, state and central levels.

Clearly, this might contradict the notion of rationality, consistency, co-ordination and co-operation on which mechanistic perspective is founded and the general notion of established goals, commonly pursued. These findings bear no semblance with for instance, the rational theorists' definition which posits that organisations are collectivities oriented to the pursuit of relatively

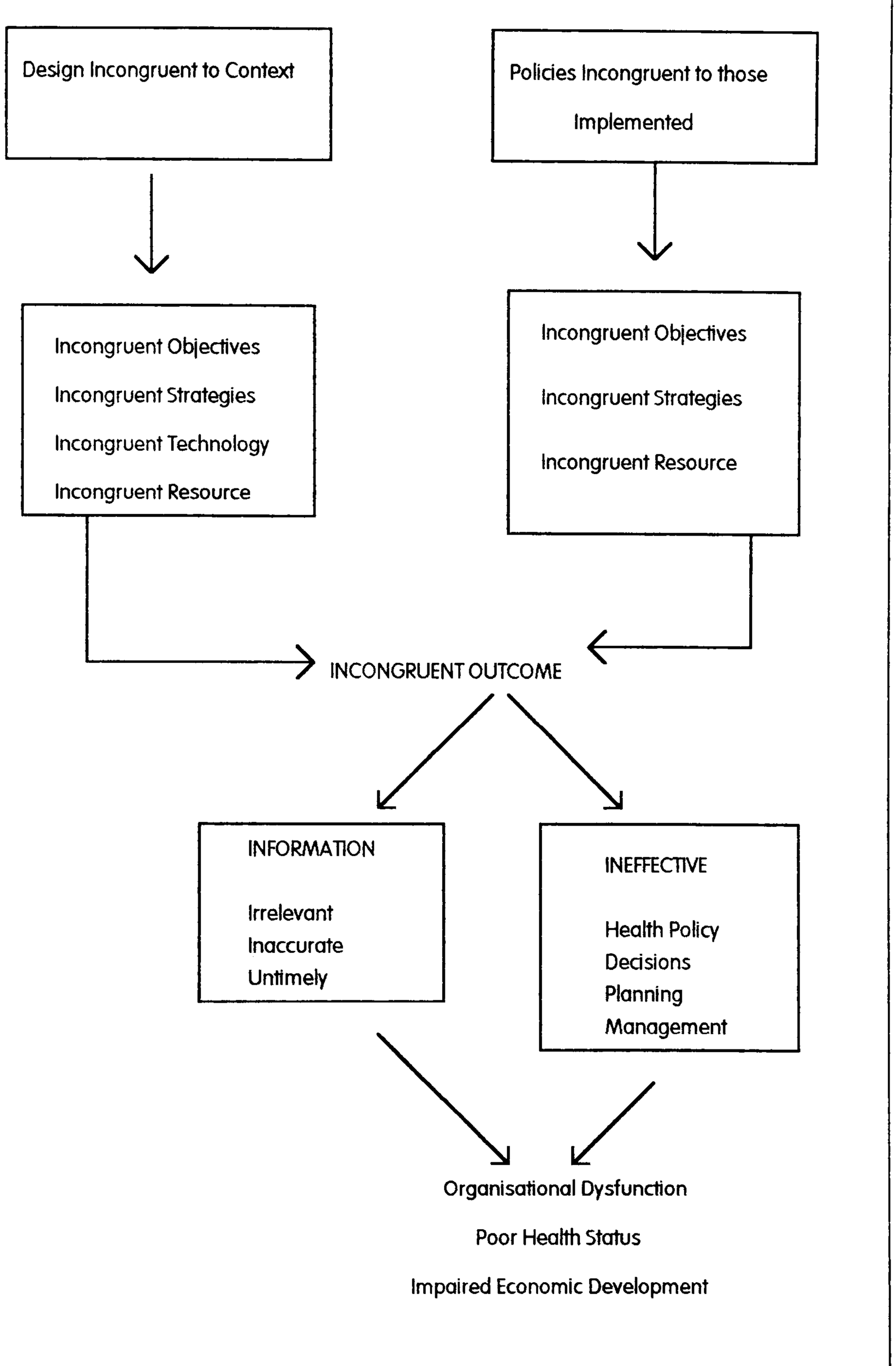
specific goals with formalised social structures. In view of this, defining organisational goals, conceptualised as desired ends is indispensable to the organisation, and assume that goals are explicit and collectively pursued by members of the organisation. It would perhaps be an enigma to such theorists to conceptualise an organisation without defined goals.

Nevertheless, the rational perspective provided a basis for appreciating the need for oragniational goals as a means of directing organisational activities. This gave impetus for analysis and identification of the varying degrees of goal incongruity within the Bama information system. For example, higher level objectives were not redefined to reflect local information needs, consequently there were no local objectives being pursued.

Experience and literature seem to indicate organisational dysfunction and ineffectiveness in Nigeria are not limited to the PHC information system. Findings in this study are supported by other studies in Nigeria which seem to suggest both public and business sectors often failed to meet organisational expectations. For example, Kilby (1969), reporting the results of a 1966 study on 268 largest indigenous industrial firms in Nigeria showed that generally, level of efficiency was very low; standard of financial management low; inadequate supervision of workers wide spread; inadequate documentation was a serious problem; poor delegation of authority; dishonesty and lack of trust between business partners; and a general refusal to acknowledge managerial limitations, which are blamed on external factors.

Similarly, after the civil war in 1972, the Nigerian Enterprises Decrees were promulgated to assist indigenous business, which was further underscored in 1977. Government acknowledged the need for optimum utilisation of manpower to attain efficient utilisation of resources and effectiveness within public service for economic and social development.

Figure 8.1: Model of Organisational Incongruity



As a result various panels were set up, one of which, with far reaching implications was the Public Service Review Commission, chaired by Chief Jerome Udoji, in 1973. A section of the Commission's findings was on cultural and environmental factors that affected public sector in Nigeria, these include:

- Low level of national consciousness by bureaucrats
- Widespread corruption, depicted by tendency for officials to appropriate powers of their offices to their private needs.
-Reluctance of superiors to delegate responsibilities to subordinates.
-Absence of co-operative relationship between and within grades of employees in the bureaucratic hierarchies.
-Intense and negative class consciousness on the part of bureaucratic elite.
-Absence of a keen sense of time punctuality

A fundamental question that is yet to be answered is what are the contributory factors to such insalubrious behaviours by public servants in Nigeria? Such behaviours that pervade organisations and seem to be supported by this study have persisted, impede organisational performance, resulting in the wide spread ineffectiveness suggested by these studies. Answers to the above question transcend the scope of the organisation and are perhaps imbedded in a consideration of the wider social structure.

8.3: Society, Individual and Organisation Incongruity

Oloko (1993), argues that Nigeria has been involved in what he termed selective adaptation of socio-cultural beliefs and values to modern western management concepts and practices, which is unviable in Nigeria. Oloko's study on management approaches in Nigeria identified certain factors within the society as contributing to ineffectiveness in organisations.

- Demands of family members, either nuclear, extended and polygamous, this includes near and far relatives, exert varying levels of pressure on the bureaucrat.
- Absolute obedience to age and position, and the level of authority and power such individuals exert.
- Age grades and friendships, often loyalty to such collectivities is much stronger than that accorded the organisation.
- Religious affiliation
- Membership to ethnic or tribal groupings and traditional secret societies.
- Strong social networks, usually comprises friends of friends and friends of members of social groupings.
- A male dominated management work force with continued relegation of women to second class citizens.

Inkeles et al (1974), of Harvard University in a study of six developing countries on the Socio-cultural aspects of development, suggest that many of the beliefs, values and norms necessary for integrating values and attitudes of modern western management concepts and practices are found in a fair proportion of educated, urban factory workers in many non-western societies. However, differences in the distribution of these values and attitudes lie in their proportionate distribution and not in their absolute absence or presence. In western societies it is the mode, while in other sets of societies it is minimal.

Predicated on the foregoing discussions, sources of incongruity obviously extend beyond events within the organisation, in the case of PHC information system in Nigeria, they are partly due to factors in the wider social structure. Burrell, et al (1994), argue, organisations are better understood in relation to wider social formation and wider social changes that lead to structural contradictions and dislocation that inevitably affect organisational structure. Therefore, the society affects organisation in two ways, individuals bring into organisation personal values, aspirations and needs shaped by the socio-

cultural environment and secondly the organisation is affected by contradictions in policies and societal demands.

Incongruity could arise when there is conflict between societal and organisational demands on the individual: between norms, values, habits, attitudes individuals bring to the organisation which are inconsistent with those of the organisation. As a consequence of which organisational dysfunction results from the insalubrious interrelationships between organisational expectations and demands and those of the socio cultural formation on the individuals in organisation, consequently leading to ineffectiveness and failure to attain organisational goals and objectives.

In this context, the information system becomes dysfunctional when it fails to generate the quality and quantity of information required for planning, decision and policy making particularly at community level as well as state and central levels. Factors within the social structure identified by OLoko with far reaching implications for organisational performance and effectiveness is the demands of family members, nuclear and extended, which include near and far relatives that exert varying degrees of pressure on salary earners.

This assertion is founded on prevailing social reality, predicated on the fact that in most Nigerian organisations, particularly within the public sector, salaries are meagre, where polygamy is allowed, it is not uncommon regardless of earnings for workers to have more than one wife and numerous children. This is coupled with and compounded by other extended family responsibilities. For example a young PHC worker on a salary of one thousand naira per month, approximately less than fifteen pounds, based on current official exchange rate. These and perhaps other factors result in workers resorting to diverse unconventional means of meeting family responsibilities.

A situation that is perhaps unorthodox but indeed a reality in this context, but not considered in the development of salary structures and remuneration. It

is therefore incongruous for society to expect workers to carry out extended family responsibilities without extra resources required, further compounded by the lack of effective social security system. The unemployed, youths, and the old, depend on salary earning relatives for their education and livelihood. This is obviously in contrast to practices in developed societies where salaries are continually adjusted to meet inflationary rates and living standards, coupled with strong and effective social security systems that provide adequate support for the poor, unemployed, elderly and even working parents with children.

Consequently, incongruity in the wider society leads to inappropriate behaviour in organisations. Paradoxically, approbation is accorded those members of society who succeed in meeting social expectations, despite recognised limited financial circumstances. Thus, society implicitly approves and perpetuates these factors that contribute to organisational ineffectiveness. Yet proper behaviour is presumably expected in organisation in order to achieve effectiveness, but this is inconceivable in view of the irrational social structure that impact immensely on organisational behaviour and performance.

On the other hand, traditional bureaucratic structures along which organisations are modelled, advocate remuneration of workers based on merit. This is often not the case, where uniform salary structure is practised, exemplified by the situation in Nigeria public services with perhaps exception of the university system, remuneration, promotion and upward mobility are often not based on employees' job performance but rather on group promotion and years of service.

Demands of family members, either nuclear or extended, which includes near and far relatives, exert varying degrees of pressure on the bureaucrat and invariably impact on behaviour within organisations. Inevitably, there are bound to be problems, such as the high level of incongruity identified in the Bama PHC information system. What is vital is the recognition of this inextricable relationship between the wider social context, workers and the organisation

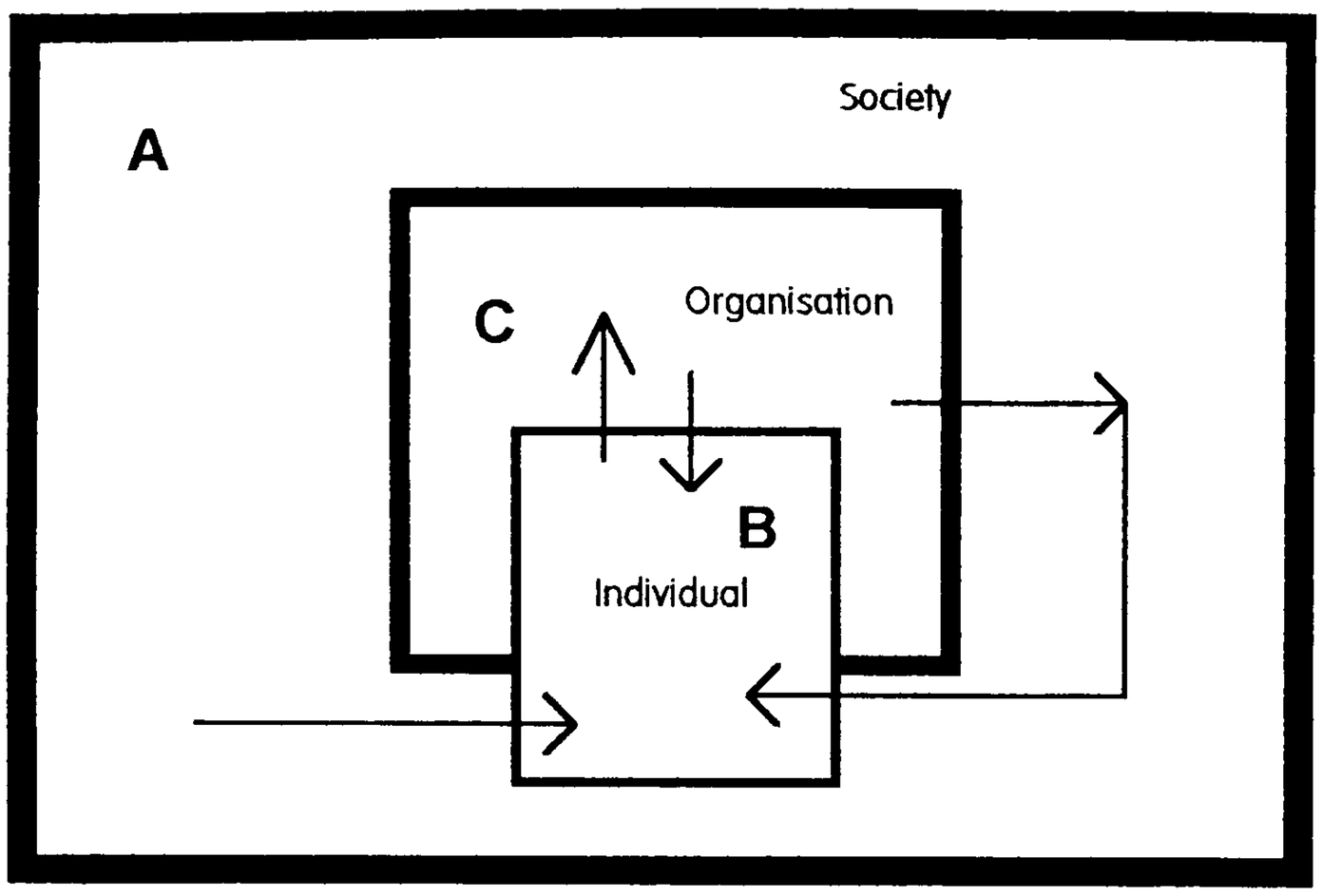
and that the social structure invariably has immense impact on the structure and organisational performance (figure 8.2).

In figure 8.2, **A, B and C** represent the society, individual and the organisation respectively, and the interrelationships between these elements. Society, as suggested in this study affects individuals by placing immense family responsibilities on them which are to be fulfilled. At the same time meagre salaries are provided for attainment of imposed societal objectives. These expectations influence behaviour within organisation and lead to pursuit of objectives that are inconsistent to those of formalised organisational structure, resulting in ineffectiveness and dysfunction. This is depicted by poor information systems outcome, data inaccuracy, poor decision making, poor health systems management, poor services to the community and unhealthy population. Furthermore, the situation spills over to the society in terms of low productivity and socio-economic development and a vicious cycle ensues.

The society affects individuals by inculcating certain values, beliefs, social behaviour and responsibilities as members of a social grouping. Objectives ideologies says Brunsson, (1982), in organisation as in the society are ideas shared by group members which afford common basis for decision and action. Commonly shared ideologies as well as individual aspirations influence behaviour in the organisation, that may be, as demonstrated in this study inconsistent with formal organisational expectations.

The effect is ineffectiveness and poor organisational performance. Consequently, there is minimal output from the organisation into society to support and sustain its population, more is therefore expected of workers, as said earlier, a vicious cycle is established (figure 8.3). Organisational design must therefore be based on serious consideration of the context within which it is to operate rather than simply following traditional theories of organisation developed on the basis of studies set in western developed countries.

Figure 8.2: Relationships of Society, Individual and Organisation

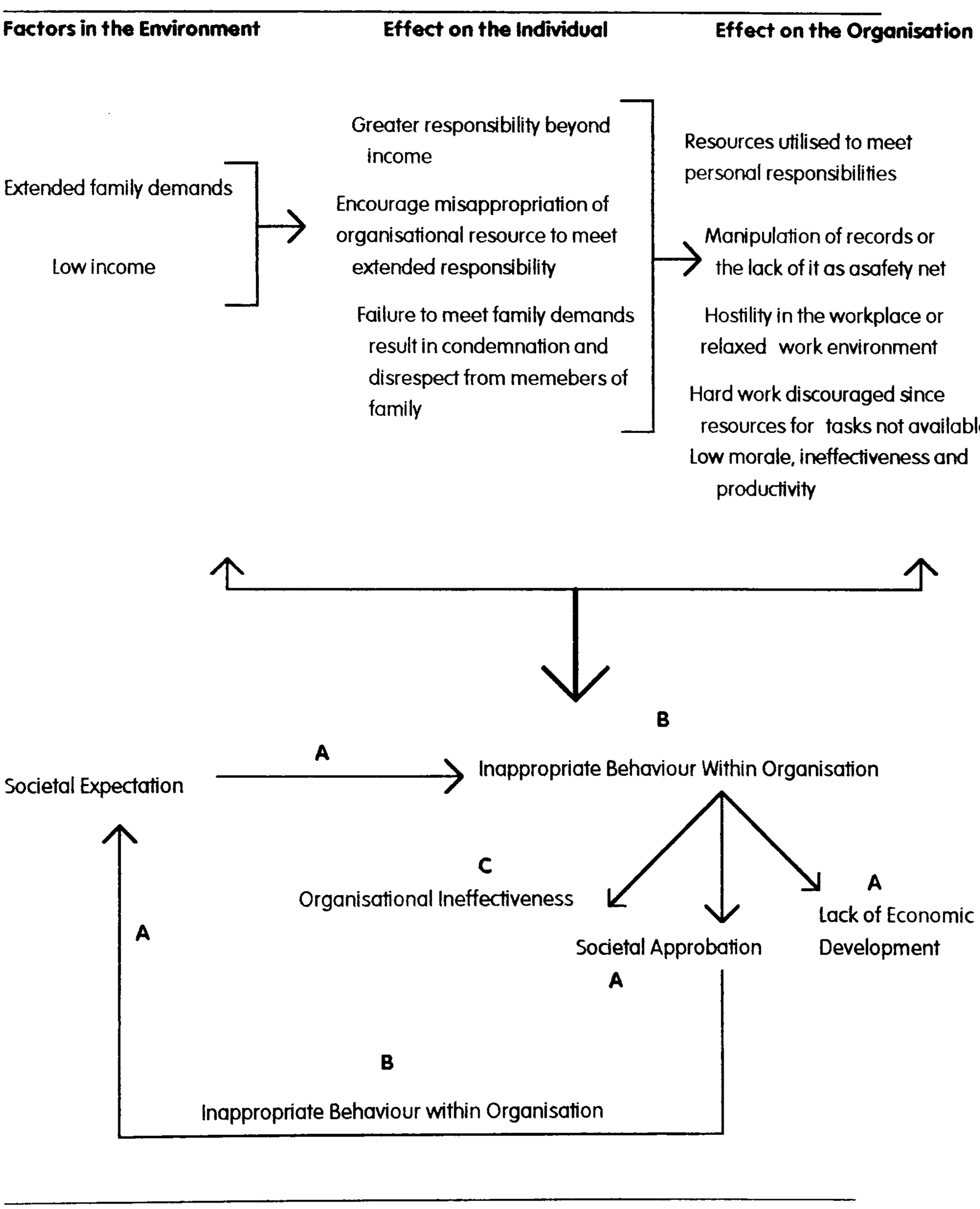


Literature however, seem to suggest that MIS dysfunction is not unique to the Nigerian System. Msimangira, (1994); Eilon, (1993); Chigabatia, (1992); Mazumdar, (1992); Lara Vasquez, (1992); Xinzheng, (1992); Han, Kwong, (1989); Hoye, et.al. (1984). These represent reports from Tanzania, Britain, Ghana, Bangladesh, Venezuala, China, Malaysia, USA. For example, Earl, et. al (1980), opined that systems designers, managers and researchers in developed countries have recognised the increasing problems with development and operation of the MIS. Lack of management involvement and support are suggested contributory factors.

Eilon, (1993), confirmed, that even in advanced societies with sophisticated systems of computerisation, there have been successes with equally many disappointing results, particularly after huge sums of money are invested in their design and operation. Reasons for failures include poor design concepts; inability to determine in advance the range and depths of users' needs; and rigidity that prevents early modifications capable of keeping up with changing circumstances. This has led to contending arguments on how to measure quality of information systems. Undoubtedly, causes of information systems ineffectiveness and dysfunction in different contexts vary, relevant solutions in

each context are essential, this study shown that factors within the society could adversely affect operations of the information system.

Figure 8.3: The Complex Model of Incongruity Between Individual, Organisation and Society



8.4: Summary

In this chapter an attempt is made to present a model of organisational incongruity as well as illustrate the complexity and inconsistencies between demands of the society and those of the organisation on workers, who belong to both social contexts. Analysis clearly suggest that factors contributing to identified incongruity within PHC information system discussed in chapters six and seven, transcend organisational level and are much more related to events in the wider social context.

The effect of organisational/societal incongruity as demonstrated by findings in this study is pervasive resulting in organisational ineffectiveness and dysfunction. Although earlier studies identified major causes of ineffectiveness within the public sector in Nigeria, there was no information on how this occurred, neither was the social structure identified as a major contributor suggested in this study. Perhaps such conscious or unconscious attempt by government to transfer blame on workers rather than adopting are broader perspective has been the bane hampering tractability of this seemingly intractable disease that seems to have not only weakened the health system in general but has continued to undermine socio economic development. Solutions toward improving the PHC information system must therefore consider measures within the organisation but also extend beyond the health care system and examined within a broader social environment. In terms of a community information system such as that examined in this study, clearly, the immediate environment in which the organisation operates must influence its design and implementation, one cannot be extricated from the other. Therefore measures to improve the current system into an effective community based information system must be addressed from a broad perspective.

The next chapter examines approaches toward an effective community health information system, contributions of the present study and areas for further research.

CHAPTER 9

TOWARD EFFECTIVE PHC Information System

9.1: Introduction

This study assessed quality of PHC information system in Nigeria, with Bama LGA as a case study. In this chapter research findings are summarised, implications of wider societal incongruity on organisational performance examined and measures toward attainment of relative congruence in organisation presented. This study's contributions to knowledge and its usefulness as an academic tool is reviewed, while areas for further research are suggested.

9.2: Summary of Findings: Organisational/Societal Incongruity

From the outset of PHC implementation Nigeria, government recognised the need for monitoring and evaluating effectiveness of services and programmes, this made establishment of an effective information system imperative. It was proposed that such a system would not only gather health data for monitoring identified indicators but would also have the capacity of providing managers, planners and policy makers with needed information, at all levels of the health care system, thus the conception of a PHC MIS.

The national health policy stipulates, national information system would facilitate assessment of health status of the population; identification of major

health problems; priority setting relevant to each level of health care; monitoring progress made in attainment of health goals and objectives; provide indicators for evaluating effectiveness of health services and their impact on the community; and supply information to those who need to take action, including data producers and the public. However, national health planning, management, monitoring and evaluation were hampered by dearth of reliable information (FMOH, 1988).

In view of these factors, along with adoption of PHC in 1986, the Monitoring and Evaluation Department, of the Federal Ministry of Health was established to collect data for assessing identified health indicators. Subsequent to its establishment, in 1991 the FMOH reported routine returns had increased from 30% to 80% by the half of 1990 and immediate notification had significantly improved. However, there were still problems with the reporting system which include the lack of participation by several states; late submission of reports from those participating; and improper compilation of data. Data collection processes and tools had as a consequence been continually modified, yet problems have persisted.

This research was therefore to understand factors contributing to the seemingly intractable ineffectiveness of health information systems in Nigeria with focus on PHC system. Although emphases were on rural PHC information system, with Bama LGA as the focus, data collection extended to the state and federal levels. Donabedian's structure, process and outcome models of health quality assessment, were adopted as framework for data collection and analysis. Although the study intended to examine the structure, process and outcomes, emphases in data collection were on structure and outcome, due to recognition from the outset of the poor level of structure that hampered processrual activities. To reiterate, assessment of structure in health care based

on Donabedian's model involves evaluation of quality and quantity of resources available for provision of services.

The actual physical facilities in which services are provided, adequacy of required supplies, amount, type and condition of equipment. Staffing, the number of professional and non-professional staff, ratio of personnel to patients or other responsibilities, qualified and non qualified staff, their qualifications and experiences. Provision of training and staff development; leadership, supervisory and management capability; the existence of up to date procedure manuals, objectives, policies, guidelines; composition of professional committees; and adequacy of systems dealing with quality measures, record keeping systems, maintenance of equipment.

Process comprises those activities carried out in the process of service provision. Donabedian, (1980), argues that the most direct means to assess quality of care is by assessing the care provided, 'the process. It involves identification of quality problems through a review process, in which good, bad, unexpected outcomes variations and deviations in the provision of health care services are identified. Standards are set and approaches to resolution of problems established, actions taken to implement corrective measures. Process assessment can be retrospective or prospective. Process assessment in the information system would involve examination of that actual planning for data collection; the data collection process, organisation and sorting; data analysis and use of information.

Outcome is an indirect approach to quality assessment in health care, based on the extent that change in patient's current and future health status can be attributed to preceding services received. This includes physical, physiological, social and psychological improvements, as well as patient attitudes, health knowledge acquired by patient in the process. It aims to measure attainment of health care objectives, which include the reduction of mortality and morbidity

rates; promotion, restoration and maintenance of health; alleviation of pain and suffering; promotion of patients ability to live socially and economically productive life; patients' satisfaction with health care services; and the provision of care cost effectively. Relative to the information system would include the quality and quantity of output from the information system; and results derived from information utilised.

Research findings show that quality of the information system's structure was abysmally poor due to high level of incongruity, this affected quality of the process and outcome, thus resulting in organisational ineffectiveness and dysfunction. On the other hand, findings suggest organisational incongruities were due to diverse factors from within the organisation and from incongruity in the wider society.

Major incongruities at Organisational level

At organisational level, numerous sources of incongruity were identified. In the first instance, the information system was designed by central level and imposed on the LGA level. Types of data to be collected, by whom, when and tools for collecting data were all centrally determined. Understandably, data collected reflected the needs of FMOH and not those of Bama PHC. Consequently, use of data at local level as shown in this study was abysmal. Local information needs and idiosyncrasies were obviously not considered during the design process, forms were therefore simply completed by health workers (data forms in appendix 1). Furthermore, due to lack of clear understanding of the information process, data collected at the LGA level were not forwarded to the state level as expected. Obviously, this top/down approach was not effective.

In addition, while central objectives for the information system were defined as presented in chapter five, objectives for state and local level information systems were not identified. These findings corroborate responses from health managers in Bama that data were collected for the Federal Ministry of Health. It is therefore not surprising that health workers did not indulge in data analysis or utilise data collected.

A local information system, must address local information needs rather than those of central level, to achieve this, systems restructuring is imperative. Objectives for local information system would be defined to reflect needs of the community, similarly tools for data collection would also need changing to reflect community data requirements and objectives to be attained. Findings show that basic materials needed for operating a simple manual information system were seriously inadequate, data collection forms provided by the FMOH were the only materials consistently available. Consequently, forms were completed but there were no materials for data processing, analysis or presentation. Submission of reports were equally affected due to the lack of means of transportation. Of even greater consequence was the pervasive lack of training reported at all levels of the information system. These incongruities led to relatively poor outcome, data inaccuracy; data irrelevance to local needs; incomplete reports; reports either submitted late or not at all; and no data analysis nor use at health facility, LGA and state levels. In addition there was no feedback from central level to the state and to the community.

From a policy perspective, there was no national information policy, in addition major policy guidelines delineated at central level to ensure effective implementation of the information system at LGA and state levels were not adhered to by local policy makers. One such actions with far reaching consequence from research findings was the control of finances by the LGA Administrators. While the FMOH stipulated separate account for PHC, this was

not implemented; the PHC department was often not consulted on major expenditures for health; emphasis was on execution of capital projects that were not staffed nor equipped and allowed to dilapidate but perhaps benefited those involved in their construction.

In addition, to the poor management of PHC resources, it was also shown that establishment of relevant community health committees that form part of the information system was hampered by lack of interest from local administrators for political reasons, as suggested during interviews. The committee would, if established provide forum for District Heads, Senior Health Officers in the Community, Secretary to the LGA, religious leaders, related ministries, to discuss health matters and health information derived from the community. In addition and perhaps a major factor for the lack of interest in its establishment, could be the fact that it would have provided a forum for senior members of the community to question how health resources were utilised. For instance one of the District Heads interviewed was highly dissatisfied with the manner in which PHC and resource were managed without reference to him. Certainly, a good forum for expressing his opinion would have been at committee meetings.

It was Schawzmantel, (1987), who suggested that power was the relationship between individuals, in which one had the capacity to impose their will on others, and that politics was about the exertion of power to dominate. Salaman, (1979), on the other hand argues that activities within organisations, objectives, philosophies, structure and membership are all political.

This level of incongruity between objectives of individuals and those of the organisation contributed to lack of basic resources available for operations of the information system. In addition to personal interest, this level of incongruity may also be due to lack of understanding of advantages and usefulness of the information system to the community. Such a situation that was again due to

the lack of education provided and the top / down approach adopted in its design and implementation.

Attainment of individual objectives against those of the organisation was also found within the PHC system, demonstrated by poor record keeping or no records at all. In the course of this research answers such as there were no previous records or that particular unit heads did not like to maintain records were often proffered. This was coupled with gross inaccuracies in data recorded, which were obviously not suggestive of recording errors, presented on tables 7.3 to 7.9. These findings suggest that ineffectiveness within the organisation was not solely due structural incongruity identified earlier but was more related to incongruity in individual behaviour that are inconsistent with the pursuit of organisational goals, which are again affected by inconsistent demands of the society. presented in chapter eight.

These findings are however not uncommon in organisations as suggested by the political perspective, which advocates recognition of organisation as loose networks of people with divergent interests, brought together due to expediency to make a living, develop a career or to pursue desired objectives.(Morgan, 1993). However, behviours with political undertone as findings from this study suggest are related to certain cultural factors within the wider society, therefore explanations have to transcend political proclivities.

Similarly, study results show information system's disintegration. Data from more than 50% of functional units within the PHC department and those from all related department in the community providing health services were not integrated in the system. At the departmental level, the information system served the interests of various organisations, each supporting organisation established parallel system of data collection. The implication of this arrangement to effectiveness of the information system were may not have been recognised due to perhaps the numerous intervening factors discussed

earlier, coupled with the lack of perhaps appreciation of the purpose and usefulness of an integrated information system at the LGA level.

On the one hand, it was not stipulated within the MIS framework provided by central level to integrate data from related departments, consequently it was not done. Another explanation derived from the study was the high level of conflict and rivalry between the PHC Co-ordinator and co-ordinators of two PHC departments in operating in the community, the PHC Zonal Department and The Environmental Sanitation Zonal Office. The struggle for power and control suggestive of individual gain rather than that of the organisation seem to hamper joint work, integration and effectiveness of the information system. However, one school of thought suggests, that even when people recognise the importance of working together, contradictory elements in any job creates role conflict, many of which become institutionalised in the form of attitudes, stereotypes, values, beliefs and other aspects of organisational culture.(Morgan, 1993).

On the one hand, intendedly rational organisational structure for effectiveness, efficiency and greater accountability (Odione, 1965; Drucker, 1976; Wildavsky, 1979), and structure as means of attaining bounded rationality, Thompson, (1967), is rendered ineffective by deficiencies in the system. In the case of Bama information system, organisational structure was obviously not rationally designed, since it did not meet needs of the environment in which it operates; objectives as component of structure were not defined and resources not available for attainment of the incongruently defined objectives; individuals in organisation did not always behave rationally, from the perspective of the organisation, neither were their goals consistent with those of the organisation.

Obviously, while some factors contributing to organisational ineffectiveness and dysfunction were due to incongruity in the design of the information

system, the struggle for power and control of resources, others with far reaching implications were as the result of incongruity in individual behaviour in order to attain personal objectives that were inconsistent with those of the organisation. These inconsistencies however border on the desire to acquire more resources from the organisation to meet personal objectives. For instance, the construction of capital projects; poor record keeping or the lack of records; arbitrarily derived figures on data forms; poor intra organisational relationships.

Findings in the present study are supported by Udoji, (1973), whose commissioned study reported wide spread corruption and mismanagement, depicted by tendency for officials to appropriate powers of their offices to their private needs; reluctance of superiors to delegate responsibilities to subordinates; absence of co-operative relationship between and within grades of employees. These findings corroborated by the present research results are however more due to factors in the wider environment that impinge on workers, thus resulting in inconsistent behaviour within organisations.

This assertion is supported by Oloko (1993), whose findings suggest wide spread ineffectiveness in public and private enterprises due to numerous factors within the wider society, presented in 8.3. A factor with the greatest significance for this study is the demands of family members, either nuclear, extended and polygamous, near and far relatives which exert varying levels of pressure on the bureaucrat. This suggests that incongruous behaviour from workers in organisation have contributory factors from the wider social context.

Societal incongruities

In Nigerian, it is a tradition for workers to be responsible for their nuclear and extended family members. This responsibility could include more than one wife, an average of five children, parents, grandparents, other young

unemployed adults, the education of children in the nuclear family as well as that of younger siblings. The absence a system of effective social security leaves salary earners with no alternative. Those who are able to meet such immense responsibilities, naturally receive approbation and respect from family members and the community.

On the other hand however, generally, in Nigeria salaries are meagre, and systems of remunerating workers very poor. Consequently, in order to meet such societal expectations, workers may resort to behaviours that are incongruent to expected behaviours within organisation, such as those identified in this study. Three levels of contradiction emanating from the society, on the one hand great responsibilities are imposed on individuals, yet meagre salaries are given out to meet imposed responsibilities, to compound issues appropriate behaviours and organisational productivity are expected. Furthermore, those who behave inappropriately to meet societal expectations receive approbation. The society simply, cannot eat its cake and have it.

This clearly points to a high level of incongruity in societal behaviour and expectations, that led to incongruity in individual behaviour, thus resulting in organisational ineffectiveness. When this level of incongruity is juxtapositioned with those structurally derived, a complex level of incongruity ensues. The society therefore has immense influence and cannot be extricated from explanations for the causes of organisational failures identified in this study, supported by those suggested by Oloko and Udoji.

Smircich, et al.(1982); Burrell, et.al.(1989), Pondy,et.al.(1983), argue that organisation as a social formation must be studied in totality in order to understand its component elements and that organisations are better understood in relation to the wider social formation in which they exist. Theorists from cultural perspective such as Hofstede, (1984); Lammers et.al (1979); Westney, (1987); Lincoln, et. al (1990), Dawson, (1993); and those with

environmental inclination, Dill, (1958); Lawrence et.al, (1967); Duncan, (1972), emphasise strong environmental influence in shaping organisational structure and function. Society moulds workers as members of social collectivity, establishing common values, attitudes and expectations, which exported into organisation influence work behaviour and impact on organisational performance.

By implication the individual, organisation and the wider social environment have the potential for inconsistencies depending on circumstances. Similarly, while it is true that the social environment influences individual and organisational behaviour, some socio-cultural expectations are contradictory and led to behaviours that are inconsistent with attainment of organisational objectives, which would subsequently affect organisational performance. Such as the conflicting demands made by society on workers to meet extended family responsibilities with meagre salaries and at the same time be committed to attainment of organisational objectives.

This was demonstrated at organisational by the level of incongruity in the design of the information system that is incongruent to local level needs; the lack of explicit objectives; resources not available for attainment of defined, albeit incongruent objectives; the lack of training for information systems operators. However, rational system theorists Barnard, (1938); March, et.al. (1958); Etzioni, (1964), suggest objectives and organisational goals provide unambiguous criteria for selecting among alternative activities; organisational structural design; specify tasks to be performed; personnel needed; resource requirement and mode of distribution. This, in my opinion points to another level of incongruity between rational theory and practice, which needs re-examination, from the perspective of this study such prescriptions cannot be universally applied.

In addition to these organisational incongruity, historically systems of remuneration in Nigerian organisations are abysmal, salaries are meagre in relation to responsibilities; quite often criteria for compensation of workers are uniformly applied without consideration of individual efforts, obviously posing another level of incongruity, while at the same time society expects workers in organisation, to carry out, in the face of meagre salaries immense nuclear and extended family responsibilities. In my opinion this is at the core of the pervasive corruption, and abuse of organisational resources identified by Oloko; Udoji and others, and major contributor to organisational ineffectiveness.

For instance, in the operations of the Bama information system, study results point to a common phenomenon, reluctance to maintain records prior to and even after establishment of the information system by some health workers. Contributory factors ranged from the lack of appreciation of significance of the MIS process and use; perhaps brought about by the lack of adequate training, unclear objectives, inadequate working materials, but could however be more imbedded in the advantages derived from such activities.

Such actions obviate organisational effectiveness, attainment of objectives and improvement in the health status of the population, but perhaps facilitate attainment of individual objectives and enhance accomplishment of family responsibilities and thus promote fulfilment of societal demands. Although certain societal expectations are in conflict with generally accepted organisational behaviour, at the same time society expects the organisation to be effective and to contribute to societal development, without recognising perhaps that expectations made on workers as members of a social structure, contribute to organisational ineffectiveness and failure to meet societal goals. Yet, workers must again fulfil societal expectations in order to be considered respectable members of the society. Such is the high degree of incongruity in the societal /organisational/individual relationship.

These points illustrate the interdependence between the environment, organisation and the individual. There is no gainsaying that environment has profound impact on organisational structure, performance and outcomes as well as individual behaviour. This relationship is however not a linear process, it is vital to appreciate the codeterminant nature of organisational and individual behaviour as the result of shared extant, caused by varying shared factors in their context. Consequently, since organisational performance and workers' behaviour result from multiple factors in their context, increasing organisational performance and effectiveness would depend on adoption of multifaceted approach.

In the case of Bama information system, organisational performance was abysmal, with accentuated systems ineffectiveness, resulting from organisational and societal incongruity. It could therefore be presupposed that extended family responsibilities on both lower and upper level health workers and politicians, impacted on the system and resulted in severe incongruity in individual and organisational behaviour. It is therefore vital to address the information systems problems from a broad perspective, utilising diverse approaches within organisation and the socio-cultural context, that would be practicable, feasible and effective.

9.3: Toward Developing Congruence in Community Information System

Community Information Policy

Current efforts at community, organisational, and national levels have failed to yield desired results from the information system. However, since both

community and national health planning and policies are predicated on information derived from the community, it is therefore paramount to ensure community level information system's effectiveness, accuracy and reliability. In order to mitigate current top/down practice, focus must be on developing national and community health information policies. The NPHCDA for example, delineated national objectives for monitoring within the PHC system, these objectives are not translated at the state and LGA levels. Similarly, the National Epidemiological Department runs a parallel information system, that generates data from secondary and tertiary institutions. There was however, no clear policy guideline on health information generation, limits and use. On the other hand international organisations and other bodies are involved in data collection for varying purposes, there was no system of co-ordinating data and information generated by various organisations.

Clearly, significance of information in the health system, and the intractable problem of unreliable health data for planning, policy making and management decision, pose strong indications that a well thought out national health information policy is imperative. It is through articulation of national health information policies that objectives, roles and responsibilities, of individuals, groups and organisations could be defined and a mechanism for co-ordination established.

At each level of the health system, primary, secondary and tertiary, there should be relevant statements of information policies and objectives, to support health objectives. Information requirements for each level must start with policy statement, while objectives are derived from functions, processes and needs within that context. Clear policies and objectives for each level of the health system would give impetus for appropriate information design that addresses local needs first and culminate as well in an integrated national PHC information system. For effective establishment of information systems at

community level, its usefulness appreciated and information utilised, policies and objectives must be defined in the context of information needed for effective implementation and management of primary health services in meeting the needs of the people. This initiative must be community driven, by joint decision of community health workers, community leaders, local politicians, related ministries and non governmental organisations in the community rather than only the FMOH.

However, this study has shown that articulation of policies and delineation of objectives, while essential are not sufficient to ensure organisational performance and effectiveness. Indeed, to a greater extent even in the presence of such policies and objectives, immense degree of incongruity in societal expectation on workers, tend to undermine organisational performance, resulting in ineffectiveness and dysfunction. Consequently, solution to the problem must transcend policy and objective setting within the organisation and extend to the wider social structure. Conflicting societal expectations on workers must be addressed at the highest level of government, as well as at lower levels, to do otherwise would clearly tantamount to abdication of responsibility by government, in which case it must assume the onus for continuing ineffectiveness experienced in the health system and other public organisations.

Explicitly, to promote accountability, effective use of resources for organisational purposes, increase productivity and commitment, salary structures and other systems of incentive must be re-examined and restructured if possible. Consideration must be given to the extra responsibilities imposed on workers by the society under the guise of culture, while national wealth is misused and abused by a few members of the society.

Possible options are: government could establish a system for providing basic life necessities for the old, unemployed, students and those incapacitated;

salaries for workers could be structured with added incentive for the extra responsibilities they are expected to undertake in caring for members of the society, for which government had abdicated; and promotion and increases in salaries should be based on probity and productivity rather than the blanket approach currently in practice based on years of service.

Restructuring for Effective Community Information System

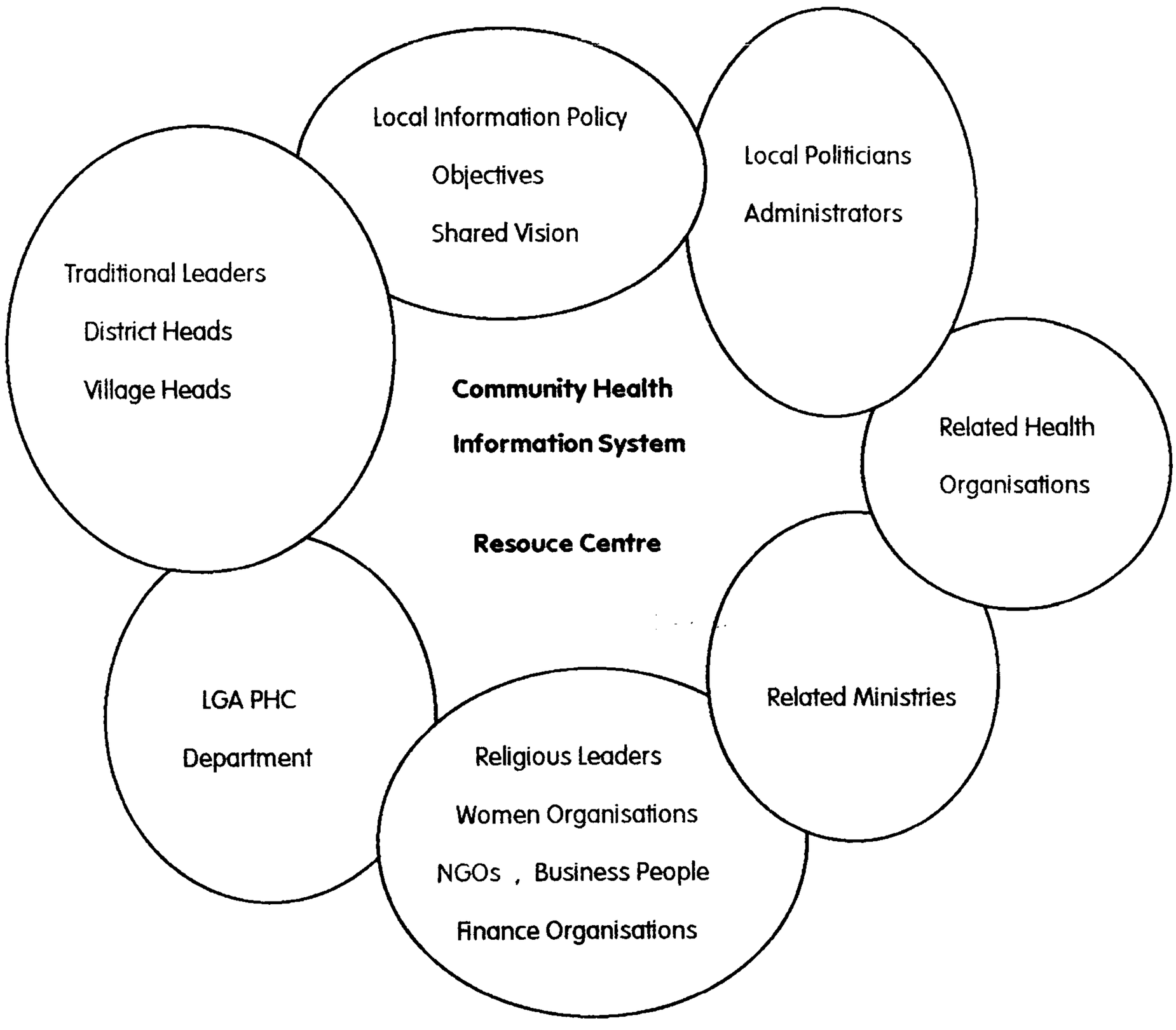
The current PHC information system needs serious examination geared toward its restructuring with community participation to address their health information needs. Regrettably, ineffectiveness in the generation and application of health information is pervasive and affects the entire health care system. Results of the present study, show that this intractable problem in the health care system, as well as other organisations in Nigeria persisted due to its roots in the wider society. Consequently, solution of problem must be addressed both at organisational level and from a broad societal context.

The current structure of the MIS at the LGA level is a classic presentation of central level prescription, delineating data sets required for national monitoring of specified health indicators but not operational level information needs. There is no denying importance of national data set, for specified primary health services. However, a simpler, more practical and relevant structure for information needs of the community is imperative, it is the most assured means of underpinning the significance of health information at this level.

At the local level, shared community vision for the information system is advocated, without this, the information system would continue to be regarded as an alien structure imposed by the Federal Ministry of Health. A well thought out community based PHC information system is required, designed in the

context of prevailing local information requirement with input from the various groups providing health and related services in the community., as well as community leaders and politicians.

Figure 9.1: Possible Framework for a Community Health Information System (CHIS)



Generation and dissemination of health information must not be the exclusive responsibility of PHC workers, strong community participation and intersectoral collaboration are advocated. Local information policy, objectives, systems of remuneration and utilisation of health information must be predicated on common identified needs of the community, collectively

determined. Figure 9.1 depicts an archetype community health information system. In essence an information system within the community should be affordable, acceptable, accessible and appropriate. With a well managed integrated health information system in the community, accurate and reliable information required by state and federal levels could be easily mobilised.

Availability of information on services provided, costs, resources utilisation and needs at local level would influence local policies and lead to corrective actions that are locally initiated based on information derived and agreed locally. In the same vein, information derived locally would enhance monitoring of local health policies, strategies, objectives and thus allow for adjustment of services and programmes according to needs. This has the potential for changing attitudes of policy makers , politicians, traditional leaders, as well as health workers.

At LGA level, planning for and management of health services ought to depend on locally generated information related to patient activities. There is a need for managers to understand the number of patients cared for at each health facility, nature of problems in the community, resources utilised, in order to plan for future health and resource requirements. It is equally vital for local politicians, traditional leaders and other major actors in the community to understand the information system, contribute to the system, have access to relevant health information, use such information and derive some results. It is through participation, utilisation and realising significance of the information system, that commitment to its improvement and measures to mitigate effect of societal incongruity would be collectively addressed.

Experts delineated varying information needs of different levels of management based on problems solved, services provided, and therefore types of decisions made, tools for data collection and processing, are at variance. This was extensively addressed in chapter one. Under the current PHC information

system however, central level involved in strategic planning and decision making provides the same data collection tools for its information requirements and those of operational level, it was not surprising that data analysis nor utilisation was carried out at data collection source.

However, one way to inculcate importance of health information in the community is through the use of data generated by health workers as well as other members of the community. Perhaps, while central level is concerned with the number of boreholes, latrines and wells, community PHC workers and community leaders ought to concern themselves with testing specimens of water to ensure water purity and safe handling of water in homes; number of deaths in households from water borne diseases, identify causes and institute corrective measures. They can ensure that latrines are utilised by all members of the household at all times, since availability of latrines does not mean utilisation. Their participation would ensure that services recorded were actually provided thus ameliorate production of data from arbitrarily derived figures, and perhaps become an effective monitoring system, which is currently absent.

For example, based on research findings, most water borne diseases due to waste contamination would have eradicated in Bama, since recorded information by the water and sanitation unit, indicate that Gulumba district with estimated population of 10,000 had 30,329 latrines, implying a ratio of 3:1, three latrines per individual (7.4.3). Such findings suggest that the figures given on data forms submitted to central level may not necessarily be related to actual situation of events in the community. Current systems are primarily event oriented, aimed at counting and analysing events, consequently their inputs, outputs and data are so oriented. This definitely has to change, adequate assessment of health needs and health situation of local populations will remain far fetched if the information system continues to be centrally led. Data collection and monitoring activities need to definitely involve selected members

of the community. Community leaders through the use of visual aids prepared at the information resource centre could be involved in community education.

Current data collection tools should be scraped, methods and tools relevant for data requirement should be designed by the community. Health workers, community leaders, local administrators would decide the nature of information needed and determine the most appropriate tool for data collection. Where the community information system is properly designed and effective, collection of data on various indicators required by central level should be reduced to the barest minimum and could be easily obtained from existing community and health facility records when needed.

In the design of a PHC information system, the interface between community health workers, community served, and the impact of services requires careful attention, at each level, goals and principles of primary health care must be paramount in considering the most appropriate information system. Coverage of health services, varying needs of communities, their involvement, interventions, outcomes and impact of services are important indicators for consideration. Within the present structure, the information system is of limited utility to health workers and the community, due to incongruity arising from the organisation and the society. Although the organisation is ineffective, however, due to societal incongruity leading to incongruous behaviour in organisation, by workers adopting unconventional means of utilising organisational resources to meet extended family responsibilities expected by the society.

In this sense the community is served, however, only very limited members of the community gain. Effectiveness, equity and accessibility to majority of the population could only be realised by addressing these causes of incongruity identified at societal level. Placing the information system within the community, where it would be collectively planned and managed, would provide the

impetus necessary for addressing the needs of workers and their families and those of the community in general; incentives for effectiveness and commitment to organisation would therefore become collective concern of the community.

The structure, tools and people involved must match information requirements and the context to be served. Needs of the user, educational background, position in organisation, level of comprehension, are factors that codetermine system's effectiveness. The quality of the information system is dependent on its capacity to provide such relevant information that are accurate, timely, simple, understandable and most of all useful to front line health workers and the community.

To enhance community participation, system relevance, accessibility, effectiveness and usefulness, **a community information resource centre,** could be established, designed and managed in conjunction with members of the community, away from the PHC department. Existing structures that are dilapidating could be used for this purpose. The resource centre would provide a place for educational activities, meeting, a library for the community, a centre for data gathering, analysis and the display of health information derived from the community by the people. This would encourage not only community leaders and policy makers to invest in the centre but might also attract donor agencies and local governments to invest more on information generation. Information system jointly operated and utilised by members of the community would encourage a more efficient resource investment, provide additional monitoring system that would enhance accountability and thus improve quality of information generated.

Following establishment of an information system that is consistent with local needs and managed with adequate participation of the community, its success might well become the concern of the community and not just that of the PHC department. **A health information day** could be held in each

community at the information resource centre. At this forum, varying information derived from different sources in the community would be displayed. Health workers and leaders from other communities, state and federal health officials, as well as donor agencies could be invited to participate. Such occasion would be ideal for recognising health workers and community members who made major contributions or efforts, demonstrating commitment to success of the information system. Fund raising for the information system could also form part of activities for the occasion.

Resources for Health Information

This study clearly shows that effective operations of the information system is affected by the quality and quantity of resources available and how they are distributed and managed. PHC principles advocate the use of basic resources that are effective and affordable by communities in the provision of services, which by no means imply poor quality. Therefore, to effectively operate a simple community based information system, rudimentary requirements must be available. In the case of Bama information system, part from data collection forms provided by central level, all other basic requirements were abysmal. Naturally, data collection was regarded by most front-line workers as a response to central directives, which had no application at community level.

Provision of, for example paper, pencil, pens, calculator, typewriter, transportation, good office space, appropriate data storage systems, is obviously rudimentary for any community information system, which should not be prescribed by central level, such attempts in the past have obviously failed to yield positive results. Resource determination and utilisation must be locally based on discussions by all the main actors in the community, local leaders, politicians, health workers and other relevant agencies; assessment of needs;

agreed plans and objectives; and established standards that are directed toward meeting health needs of the community.

Having said this, it must be borne in mind that collection and processing of data cost money, a piece of information that costs more than the value derived from it is not cost effective. Money and time expended collecting volumes of data that are never used, tantamount to waste of scarce resource and certainly inefficient. Obviously, valuing information is sometimes difficult, nevertheless, it is necessary to ensure the cost of a piece of information does not outweigh its benefit. Therefore, the need for more focused data collection cannot be overemphasised, directed toward those needs identified by the community rather than the copious amount of data collected under central directives that are irrelevant, unreliable and not utilised at the community level where they are generated. However, establishment of an effective community health information system requires resources, hard work, collaboration and co-ordination.

To achieve this, health workers and the community in general, must appreciate the significance of information and acquire skills for effective use of available information. Inevitably, a change in community and health workers perception and attitude to information is required. Change in attitude would have to arrive from perceived and felt usefulness of the information system in the community through their involvement, application of information and outcomes experienced. Feedback from inputs into the system, in terms of its effect in the community would undoubtedly forster organisational support and more commitment to the information system. To enhance this various incentives could be collectively decided for health workers and other members of the community with positive contributions.

Changing attitude and behavioural skills have often proved difficult to achieve. It is however more difficult to reconcile introduction of the information

system in an environment where information was accorded little regards without adequate training and attempt to change attitude and perception. Even where accurate and reliable information are available, its use is greatly affected by attitude to, the capacity to interpret and understand information.

Important aim of the Federal Ministry of Health from the outset toward an effective health information system would have been the creation of a culture and a technical environment that recognises information as a valuable resource within which information is effectively mobilised and utilised. Intensive ad prolonged training, nurturance of workers and the community was therefore imperative. This can only be achieved through decentralisation of decision and placing the information system in the community, to be managed collectively with members of the community and to form an integral part of that environment. Findings from this study brought to light the impact of societal incongruity on the organisation and the unwillingness of local political system to invest in the information system, train and provide needed manpower for PHC services.

These issues are best addressed by the community, since obviously central directives did not yield positive results. If the information system became part of the community and its usefulness for the community appreciated, leaders in the community as co managers would equally act as advocates for the information system; facilitate resource mobilisation and efficient; and promote system's effectiveness. Furthermore, as custodians of the community their inputs at local and central levels are well respected, might encourage more support from local politicians.

National and local health manpower planning is essentia but has received minimal attention from health systems' policy makers and planners (WHO, 1990). The current situation in Bama and perhaps in most parts of the country is compounded by the lack of established manpower standards for various

services provided. In the absence of established policies, plans and objectives, events are therefore left to political discretion. Planned deployment and training of appropriate work force should underpin the information system's implementation to ensure that relevant people with the right skills, knowledge and attitudes are involved in effecting programmes. The importance of information management training for health managers as well as specified training for information systems managers at all levels cannot be overemphasised.

At the same time training members of the community on the information system, its processes and usefulness to the community would facilitate acceptance and participation. A structure for community involvement albeit weak was conceived by the federal government, the establishment of village, district and LGA management committees. The structure and role of these bodies should be carefully examined, modified and strengthened for effectiveness.

Systems of remunerating public servants need serious reassessment within each community and by federal government. Government abdication of responsibility to civil servants under the cloak of culture must come to an end. Either salary structures are restructured in view of prevailing circumstances to ensure equity, with due consideration given to extra responsibilities placed on workers by unemployed relatives, students and the old, orphans, widows, unmarried mothers whose basic life necessities must be provided, or an effective social security system be established. Corruption, misappropriation of public resources, ineffectiveness and inefficiency, low productivity and general organisational dysfunction be mitigated only when government is ready to carry its share of responsibility.

In the short term, measures should be taken to adequately remunerate hard work and commitment. It is rather daunting to adopt a blanket approach

toward salaries and promotion, without due consideration to individual efforts, implicitly encouraging ineptitude while discouraging hard work. Measures could be determined at community level, under circumstances that prevail. This could be achieved by some sort of recognition from local leaders and policy makers. For example, diligent and committed workers in the community could be accorded certain title, accompanied by token gifts.

Integrating Information Systems

Community information system must be robust enough with capacity to integrate data from varying sources in order to provide comprehensive information. Each unit / department or health facility can organise its information system within limits of responsibilities and purposes. However, the LGA information system would require data from all units and facilities providing health services in the community. Amalgamation and analysis of data from varying sources to obtain broad picture of health situations, needs and services provided, would be carried out by the information unit, located in the information resource centre rather than PHC department.

This perhaps would avert disintegration that exists in the current system, whereby data from 60% functional units of the PHC department are allowed to operate parallel systems and there was no indication on how to merge data from related organisations in the community. Furthermore, dichotomisation of primary, secondary and tertiary information systems is a disadvantage to the community information system. Data sets from hospitals and other facilities that ought to form part of community data base are not harmonised, often leading to duplication and marginalisation of community information systems. For example, community hospitals provide services to a given population not extricated from those served by primary health facilities, data derived must therefore form part of community information system.

Data generated by each unit and related organisations in the community should provide information usable for its purposes as well as for community based decisions. The inter relatedness, interdependence and synergism in services provided within the PHC framework make data integration essential. Sage (1981), for example argues that information flow is the most critical among the various connecting elements of the organisation. Furthermore, Ashby (1956), suggests complex systems cannot be understood by analysis that attempt to decompose the system into its individual parts, it only provides a vast number of separate parts or items of information, the results of whose interactions no one can predict. Synergy is vital in the understanding of complex organisations, collective operations of the subsystems is therefore essential for setting community goals with collective efforts toward their attainment.

A system as could be recalled from the system's perspective, is an amalgam of various elements, that are related and depend on each others contribution for the attainment of some objective. Murdick et.al. (1971), argue that the systems approach embodies a philosophy of always viewing a situation and its components in its entirety rather than as separate pieces. The systems concept provides a framework for assessing the scope for more integrating and co-ordination of activities of the organisation as well as input from external environment.

The Issue of Quality in Health Information Systems

Quality in the health system and PHC in particular is a desideratum, however, to ensure effective assessment, quality of available information must be assured. A number of quality characteristics for the information system are suggested by experts, to include relevance, accuracy, reliability, timeliness, understandability and completeness. Clear, these attributes are not easily attainable in all circumstances, information producers and users must agree those criteria and standards that are essential in a given situation and for

particular decisions or problems to be solved. Undeniably, effective implementation of PHC would improve health status of the people, quality information among other things when used effectively would improve health services and systems management.

Research findings indicate quality of the information system is abysmal, relevance of data collected to community information needs is questionable, inaccuracy was common, data were often incomplete and untimely. Relevance, I suggested could be resolved by redefinition and restructuring of the information system and tools for data collection developed in accordance to local information needs, problems and resource limitations. Data collected must assist the community in understanding health needs, impact of services, resource implications

Within the present structure, accuracy of data cannot be assured, since training was not provided, data collected were of little significance, materials not available and most of all there was dearth of health workers responsible for provision of health services as well as data collection of the magnitude required. More skilled workers are required, with adequate understanding of the information system. In addition to M&E Co-ordinators there ought to be adequately trained assistants responsible for assessing data collected at the health facilities and in the community for accuracy and completeness before submission to the information unit at the resource centre. It is much expedient to track data at source rather than at the state or central level.

Community leaders and other capable bodies could be sufficiently involved and complement activities of health workers, if adequate training relevant to responsibilities was provided; act as additional control and monitoring measure, at the same time facilitate acceptance of the information system as an integral and important structure in the community.

Feedback is an important but often neglected element in a rural information systems, as shown by research findings in chapter six and seven. It is only through feedback that data collectors would be able to know how well they are doing in the data collection process and how the community fares in terms of health status in comparison to other communities. Feedback further enhances learning on a particular system and may contribute to behaviour change. To reiterate, appreciation of usefulness of the system that provide information which could be utilised by the community to educate the population, plan and effectively manage health services would promote its acceptance and institutionalisation in the community. Feedback was not accorded adequate attention within the information system, perhaps due to lack of understanding its immense use in promoting behavioural change and enhancing system's effectiveness. Even more fundamentally, feedback is an important element in any form of communication, an enabling tool for enhancing effectiveness in the system.

Information, Feedback and Behaviour Change

Nadler, (1977), argues that information is a major factor in the understanding of organisational behaviour, has enormous influence on patterns of individual and organisational behaviour, and a potential tool for altering these patterns for effective change. Conceptually, information have the capacity to arouse feelings and create forces for behaviour changes, serve to energise behaviour. When for example information is presented to an individual, a group or an organisation, it tends to stimulate energy, arouses interest around the issue presented by the data and thus begins to motivate action. Hypothetically, a high death rate from cerebro spinal meningitis (CSM) in a community that had undergone complete immunisation against CSM would naturally arouse the interest of health managers and thus motivate them to

take action. But without feedback it would be impossible for health workers to appreciate this situation.

Similarly, information has the potential of directing behaviour once there is motivation. Again with the CSM scenario, information collected would help managers, policy makers or the organisation in general to determine kinds of behaviour that would lead to certain outcomes. Energising and directing of behaviour that occur are believed to be often dependent on the nature of data, the collection process, analysis and the feedback process. However, the directing of behaviour is very much dependent on the energising process, implicitly information cannot bring about change without the motivation to change.

Studies of control systems and processes in organisations from a behavioural perspective, show that collection effects occur because events, the simple act of collecting information stimulate and direct energy (Lawler et. al. 1976). Generally, individuals, groups and organisations are attracted to, invest energy and resources in those areas where data are collected more than where there is no data collection or measurement activity going on (Camman, 1974). Data collection generates energy around those activities that are being measured. Lawler, (1973), argues that generation of energy around areas being measured or where data collection abound is perhaps due to the fact that people's behaviour is determined by assumption that possible rewards or punishment may emanate from such behaviour. Data collection therefore generates energy because it affects perception of how the behaviour being measured may be rewarded or punished (Nadler, 1977).

Data collection does not always lead to positive or productive activity, sometimes energy generated is used in non-productive or negative manner. Cammann, (1974); Nadler, et al, (1976), in their studies show that perception of people at the time of data collection in terms of its possible uses in the future

affect the direction of energy. For example, PHC health workers who expect their manager to use data collected in open and non-evaluative way, for the group to collectively identify and solve problems would be more motivated to provide accurate information and willing to work with feedback generated.

However, health workers who expect punitive use of information generated or information not utilised at all, may choose to distort data and have less inclination in using feedback generated. This type of 'reactive control' use of data, results in defensive behaviour, falsification of data and misdirected energy. On the other hand, data used 'perceptively, is directed to problem identification and solution, goal setting and for more effective behaviour in the future rather than ineffective behaviour in the past. Flood (1993), advocates that, to improve quality the strong bureaucratic culture of organisations which led workers to be defensive in anticipation of criticism, followed by discipline and punishment need to change.

Feedback as part of the information process has an important role to play. As an effective tool for behaviour change, it generates energy and affects behaviour by motivating and directing (Locke, et al, 1968). However, feedback could have positive or negative effect, leading to desired effect or decreased performance, defensive behaviour or misdirected efforts, similar to data collection effect. In order to attain desired change, feedback must be used in a manner that encourages exploration and understanding of data and its use for problem solving and constructive change.

Furthermore, studies have shown prior to introduction of the PHC information system, record keeping was carried out and managed perfunctorily, demonstrated by lack of existing records in the health facilities, departments and ministries. Findings in this study confirm that such problems have persisted and reflected in the attitude of managers, politicians and even academics to data gathering, management and use. This study shows that contributory

factors to information systems ineffectiveness are pervasive and transcend the purview of the organisation into the wider society.

Consequently, improving quality of the PHC information system requires a broad based approach, requiring restructuring the information system such that it belongs to the community not central level nor the PHC Department. This would therefore need changing attitude and perception of community leaders, politicians and health workers in the community toward the information system.

The information system must become part of the community designed and managed with their active participation. The community must come to appreciate and feel the usefulness of the information system for it to be meaningful and accorded the attention required. Furthermore, with active participation of the community in managing the information system, control of resources might be decentralised and perhaps more effectively utilised. Effective utilisation of resources would yield dividend that would be observed by leaders and perhaps felt by the community in general. A situation that would led to change in attitude, further improvement in the information system and health care services.

Placing the information system in the community and empowering local leaders through their active participation in decision making, planning, management and mobilising resources would encourage community participation; ensure that needed resources are provided and could be a control mechanism that would encourage probity and better accountability. On the other hand, local leaders have the capacity to mobilise the force necessary to see that adequate incentive packages are provided to committed health workers, advocate review of salary systems for community health workers: since it might be in their interest for governments to review incentive packages of workers in general with emphasis on the incongruous expectations that

society impose on workers that impede organisational performance, contributing in turn to ineffectiveness and dysfunction.

Computerising Community Information System

Literature on studies in developing and developed countries on the efficacy of computerisation in the health care system have shown useful results and in some cases setbacks due to inadequate planning, inappropriate design, lack of managerial support and lack of understanding of the system by managers. Similarly, there have been suggestions in Nigeria by senior health officials on the potentials of computerisation as possible solution to PHC information system's ineffectiveness. In the questionnaire distributed to Bama PHC managers, 44.4% of respondents felt computer was not necessary for rural PHC information system, 33.3% said it was necessary, while 22.2% gave no response. Similarly, 61.1% did not think Bama PHC was ready for computerisation, 11.1% said it was ready and 27.8% had no response.

In terms of elements of the information system that could be improved by computerisation reported by managers include, 15.2% data processing, data collection, data storage, use of information and health planning by 12.1%, data retrieval and health services management by 9.1%, while no response was given by 18.2%. Advantages of computerisation identified by respondents include accuracy, time saving, easy retrieval of information, usage in health planning and management. While identified disadvantages include inaccuracy, improper management of the computer, inappropriate for the LGA, difficult to use, and the lack of qualified personnel.

In addition to these responses, this study further demonstrated that organisational ineffectiveness are affected by even more wider societal issues, that must be addressed for an effective health information system. Under present circumstances, computerisation might even compound current problems. However, its advocacy was perhaps predicated on the assumption

that this would improve output of the system, a rather naive and simplistic assumption, since computer output is very much dependent on what had been put into the system, if quality of input was poor, certainly quality of output would undoubtedly be poor. Furthermore, no matter how flexible and powerful information systems may be, quality of the input depends on the people who collect, record, organise, analyse and interpret data (Gould, et. al.,1992). Another probably explanation could be related to personal gains that would be derived from execution of such capital projects, such as the case in Bama where health facilities were built and allowed to dilapidate.

Arguably, the question is therefore not in provision of the most sophisticated and expensive equipment, which communities cannot afford, health workers are unable to effectively utilise and maintain. What is required is rather the establishment of an effective community information system, that would be of relevance to their information needs, managed and controlled by the community; and providing the basic wherewithal for operating a simple and effective information system. Effective implementation of the manual information system, general acceptance and attitudinal change toward health information by health workers and the community, would later facilitate introduction of some computer where needed to enhance data processing, storage and retrieval.

9.4: Contributions and Suggestions for Further Research

Quality assessment of health care in Nigeria is only emerging as indicated earlier. Certainly application of the structure, process and outcome quality assessment models are new in the Nigerian context. Furthermore, its application in the assessment of health information system rather than patient care is uncommon. This could be considered a significant contribution in quality assessment and research in general. Lessons learnt from this initial attempt

would be applied in future quality assessment endeavours in Nigeria. For example, it was rather daunting to embark on a quality assessment exercise where there was no established standards. How would one determine appropriate elements of structure and standards of process? In this case the researcher decided to examine the most rudimentary elements of structure that would be essential for any rural information system.

Furthermore, since the most rudimentary elements of structure as shown in the results of the study were abysmal, emphasis on process assessment was consequently considered impractical. This was on the premise that in order to assess process, adequate structure must be in place. For instance, to enable the information system's co-ordinator analyse data, basic training should be provided and tools for data analysis made available. If these were not provided, it would therefore be irrational to assess how data was analysed in view of prevailing circumstances.

Understandably, the focus was on structural assessment which proved illuminating and a major lesson for quality assessment projects in developing countries or environments where there is problem with resource management and distribution. In addition to recognising the potential effect of certain socio cultural factors on structure, it must never be assumed that structure is always adequate in all contexts and that process assessment is the best determination of quality and outcome. This study explicitly indicates that context is a major factor in determining appropriate quality assessment measure.

In this case, structural assessment was essential and was demonstrably, linked to both process and outcome quality, which seem to contradict generally held notion that structural quality was not linked to outcome. This again perhaps highlights the need to address quality assessment of clinical care separate from the assessment of other subsystems, such as the information system. Therefore to embark on process and outcome assessment in all

contexts without thorough understanding of the structures available is not realistic and would make a mockery of the quality assessment exercise. In some contexts it is essential as shown in this study to understand the quality and quantity of structural elements and ensure their relevance to planed process, which would then give impetus to process assessment.

Application of qualitative data collection techniques in Nigeria is limited, understandably due to resource limitations and perhaps also lack of skill in their application. In addition, qualitative approach is resource intensive, in terms of time money and other materials, a privilege not enjoyed by individual researchers. From experience and in discussion with colleagues, most qualitative studies are often driven by international donor agencies. Furthermore, in academic institutions quantitative method is emphasised, clearly, it is cheaper, easily administered and data analysis not complex.

However, in structural quality assessment and even so with process assessment, application of qualitative methods is imperative. The structure approach is considered more "objective" than others since criteria are explicit, identified deficiencies obvious, incontestable and are based on observable findings. Situations and events that may not be reported during interview or on the questionnaire are observed by the assessment team. Actual quantity and quality of tools and materials for service provision must be observed in all its entirety, qualitative approach is therefore imperative in quality assessment.

Research results from structured questionnaire administered to health managers in Bama, clearly show contradictory data could arise from application of two methods. For instance, responses given on questionnaire were often at variance with those derived from observation and face to face interview. If data analysis had been based on solely quantitative data, results of this study would have to some degree been faulty and in contradiction to realities. There is no

denying the limitations of quantitative methods in this study as well as the study context.

As an academic work, the most significant contribution of this study is developing a model of incongruity for organisations. From all indications, explicating results of this study with any existing theoretical construct would have been insufficient. Principles of organisational structure and processes advocated by conventional theories are not easily applicable in this context and perhaps in many other developing countries. It is hoped that this model could be further developed, through application in other parts of Nigeria and perhaps other African countries with similar problems. Incongruity in various aspects of socio, cultural political and economic dimensions in many societies are perhaps the bane of socio economic development. Incongruity within organisations in Nigeria and other developing countries might be wide spread, and clearly resulting in general ineffectiveness often experienced.

This implies relevance of the incongruity model for research in public organisations both in Nigeria and other African countries, or other areas where poor resource management or constraints are experienced. For example in this study environment it may not have been an issue of resource constraint but that of poor resource management and misuse, resulting from inconsistencies in organisational, political and expectations of the socio cultural environment. Consequently, solutions must be varied and include measures within the social environment aside from conventional management practices, when applied might provide some solution to organisational ineffectiveness.

The most important yet unexpected finding of this study is the immense effect of incongruous expectations of the socio cultural environment on individuals and organisational performance. It is vital that traditional societies such as Nigeria to recognise that certain well meaning cultural values can be inconsistent with values of modern organisation, consequently workers are

often under constant pressure to satisfy two important yet conflicting interests. Often societal interest is satisfied against that of the organisation, the result is the pervasive ineffectiveness and poor performance continually reported. This is a serious issue for national discussion. As Burrell, et. al 1994, pointed out that even in industrialised societies, contemporary theorists such as Dickson (1974), have recognised the need for alternative technologies as a means of sustaining alternative cultural forms. However, these inconsistencies exist as suggested Brusson (1989), in his theory of organisational hypocrisy, because they tend to satisfy objectives of some political coalition. If this was the case, incongruity may therefore be found in all contexts, thus the need for further development of the model and application in both developed and developing countries.

In view of the serious implications posed by the findings in this study, there is therefore the need for its extension to other parts of the country. It is important to examine structure of other PHC information systems and identify what commonalties and differences might exist in terms political commitment, resource management and distribution; data collection processes, the use of data, skills and knowledge, nature of training provided, capacity to analyse and use data, record keeping, commitment to attainment of organisational objectives, community involvement, integration of information systems, outcome of information system, relevance of data and information produced and level of accuracy. To better appreciate the scope of incongruity within the PHC system, selection of LGAs from the four PHC Zones for further research is strongly suggested.

Findings from this study have perhaps opened the " Pandora Box", bringing to focus factors that are often avoided, yet indeed, current information systems' problems cannot be solved without serious attention directed to considering the wider basis for information systems ineffectiveness. Research studies of this nature are therefore imperative. I would very much encourage application of

the structure, process outcome models for research and in the assessment of various aspects of the health system in Nigeria, in order to appreciate its full potential. Its application in this study was made as simple as possible to encourage use by academics and health workers. Wider application to other health subsystems would undoubtedly provide basis for adaptation.

In conclusion, it is obvious that information is not an abstraction but vital element in the organisation that must be properly mobilised and managed for effective management in the organisation. Effective health information management is essential for effectiveness of the information system and the health system. Processes deployed in setting up an information system culminate in the quality of information produced, which is determined by diverse factors within the organisation and the social cultural environment. These factors affect workers, their reaction to the information system and its utility and usefulness in decision making, management of health services and the community in general. In the case of PHC information system in Nigeria, incongruity within organisational structure, between expectations of the organisation and those of the wider social-cultural environment, resulted in poor quality, ineffectiveness and information system's dysfunction.

Quality of health services at any level in a health care organisation cannot be adequately assessed without the right quality and quantity of information, that is relevant to the context within which the system operates. Clearly, unless central level is keen on holding unto power over control of information, which seems to be the case at the moment, serious steps are required in implementing an effective community information system with its primary objective the generation of information for the community. Such a system needs to be simple, practical relevant and robust enough to amalgamate data to produce comprehensive community health information. A broad based intervention is required, with active input from the community imperative.

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Appendix 1

Instruments for Data Collection at Various Levels

Community Level

1. Village Health Worker and Traditional Birth Attendant Record of Work on Pictoral Form.

Health Facility Level

A. Records of VHW and TBAs Supervised by Health Facility

Record Book	Data Recorded
Book 1 HF	Monthly and annual records of work performed by VHWs /TBAs, supervised by the health facility.

B. Records of Activities at Health Facility

Record Books and Forms	Data Recorded
Book 2 HF and Book 2 HF (A) Forms 2HF 1, 2, and 3	Tally sheets, monthly and annual records of tracer diseases and out patient attendance.
Book 3 HF and Book 3 HF (A) Forms 3HF 1, 2, and 3	Tally sheets, monthly and annual records of ante natal care and pregnancy outcome.
Book 4 HF and Book 4 HF (A) Forms 4Hf 1, 2, and 3	Daily, monthly and annual records of family planning
Book 5 HF and Book 5 HF (A) Forms 5HF 1, 2, and 3	Tally sheet, monthly and annual records of immunisation
Book 6 HF. Forms 6 HF 1 and 2	Daily, monthly and annual records of inpatient care
Book 7 HF. Forms 7HF 1, 2 and 3	Daily, monthly and annual records of environmental health activities
Book 8 HF. Forms 8HF 1, 2 and 3	Daily tally, monthly and annual records of growth monitoring and promotion

LGA Level

Record Books and Forms	Data Recorded
Book 1 LGA. Forms 1LG 1 to 8	Work of VHWs and TBAs supervised by health facilities
Book 1 LGA. Forms 2LG 1 and 2	Monthly and annual records of tracer diseases and outpatient records
Book 3 LG. Forms 3LG 1 and 2	Monthly and annual records of ante natal care and pregnancy outcomes
Book 4 LG. Forms 4LG 1 and 2	Monthly and annual records of family planning
Book 5 LG. Forms 5 LG 1 and 2	Monthly and annual records of immunisations
Book 6 LG. Forms 6 LG 1 and 2	Monthly and annual records of inpatient care.
Book 7 LG. Forms 7LG 1 and 2	Monthly and annual records of environmental health
Book 8 LG. Forms 8LG 1 and 2	Monthly and annual records of growth monitoring and promotion

Appendix 2

Management Information System: Perception of Bama PHC Managers

Please complete as accurately as possible.

Part 1: Structural Elements

1. What is your level of education ?

a. No formal western education _____

b. Did not finish primary school _____

c. Completed primary school _____

d. Did not finish secondary school _____

e. Completed secondary school _____

f. Attended institution of higher learning

(please indicate, polytechnic, university etc.). _____

2. Professional Qualifications

a. .....

b. .....

c. .....

d. .....

3. Other Qualifications / Certificates

a. .....

b. .....

c. .....

d. .....

e. .....

4. Which department(s) / Unit (s) do you work in ?

a. .....

b. .....

c. .....

d. .....

e. .....

5. What component (s) of PHC is your department responsible for ?

a. All the components _____

b. Disease Control _____

c. EPI / ORT _____

d. Maternal and Child Care _____

e. Family planning _____

f. Nutrition _____

g. Guinea Worm control _____

h. Water and Sanitation _____

i. Essential drugs _____

j. Monitoring and Evaluation _____

6. What are your responsibilities in the department / unit ? Please list.

a. .....

b.....

c. .....

d. .....

e. .....

7. What are the functions of your department ? Please list

a. .....

b. .....

c. .....

d. .....

e. .....

8. Do you have enough staff for the work you are required to perform ?

yes _____ No. _____

9. How many qualified staff do you have at the moment ?

Give number _____

10. How many unqualified staff do you have ?

Give number _____

11. How many more qualified staff would you require to perform your job well ?

Give number _____

12. What amount of data does your department / unit collect ?

Large amount of data _____

Moderate amount of data _____

small amount of data _____

No data at all _____

13. Who decides what data to be collected ?

a. Yourself

b. Your workers

c. The PHC Co-ordinator

d. The Local Government Council

e. The PHC Zonal Co-ordinator

f. The Local health Committee

g. The State Ministry of Health

h. The Federal Ministry of Health

i. International Organisation

14. Who is responsible for data collection ?

You _____ Your staff _____ Both _____

15. What is the highest level of education for those responsible for data collection ?

a. No formal education _____

b. Did not complete primary six _____

c. Completed primary six _____

d. Completed primary five _____

e. Any other qualification, list .....

.....

.....

.....

16. What do you use for data collection ?

a. Any piece of paper _____

b. Forms prepared by your unit / department _____

c. Forms provided by the State Ministry of Health _____

d. Forms provided by the Federal Ministry of Health _____

e. Forms provided by other organisations

(e.g. UNICEF, WHO) _____

17. Data are usually collected from the:

Community _____

Health clinics _____

Dispensaries _____

Maternal / Child clinic _____

Family planning clinics _____

The hospital _____

comprehensive health centre _____

Other _____

18. Did those responsible for data collection receive any training on how to do this ?

Yes _____ No _____

19 If "yes", what type of training did they receive ?

a. .....

b. .....

c. .....

d. .....

e. .....

20. Did your staff receive any training on how to collect, analyse and use data ?

Yes _____ No. _____

21. Do your staff know why data are collected and what they are used for ?

Yes _____ No _____

22. Can you organise or analyse data submitted to you ?

Yes _____ No _____

23. Did you receive any training on how to organise, analyse data, and use information for decision making and planning ?

Yes _____ No. _____

24. If "Yes", what type of training did you receive ?

a. .....

b. .....

c. .....

d. .....

e. .....

25. List materials normally used for data collection

a. .....

b. .....

c. .....

d. .....

e. .....

26. Who provide these materials ?

a. .....

b. .....

c. .....

d. .....

e. .....

27. Are materials required for data collection

a. Always available ? _____

b. Sometimes available ? _____

c. Rarely available ? _____

28. Which materials are always available ?

a. .....

b. .....

c. .....

d. .....

e. .....

29. Which materials are sometimes not available ?

a. .....

b. .....

c. .....

d. .....

e. .....

30. Which materials are often not available ?

a. .....

b. .....

c. .....

d. .....

e. .....

31. What do you do when required materials are not available ?

a. .....

b. .....

c. .....

d. .....

e. .....

32. Since most data submitted to you are collected by workers in the communities, some of which are far and inaccessible, how are collected data brought to you ?

a. .....

b. .....

c. .....

d. .....

e. .....

33. Is means of transportation always available ?

Yes _____ No _____

Part 2: Elements of Process

34. How often do you receive data from your staff ?

a. Daily _____ Monthly _____

b. Weekly _____ Quarterly _____

c. Biweekly _____ Annually _____

35. On what day of the month do you expect data collected to be submitted ? Please indicate.

a. .....

b. .....

c. .....

d. .....

e. .....

36. What other means do you have of ensuring that reports are submitted to you on time ?

a. .....

b. .....

c. .....

d. .....

e.....

37. What do you do when reports are not submitted on time ?

a. Use it whenever it comes _____

b. Do without it _____

c. Include it in the next report _____

38. What do you normally do with reports submitted to you ?

a. .....

b. .....

c. .....

d. .....

e. .....

39. Apart from weekly, monthly and annual reports required by the Federal Ministry of Health and other organisations, do you collect any other data ?

Yes_____ No _____

40. If "yes", what are the other types of data that you collect ?

a. .....

b. .....

c. .....

d. .....

e. .....

41. How do you organise data submitted ?

a. .....

b. .....

c. .....

d. .....

e. .....

42. How do you analyse data submitted to you ?

a. .....

b. .....

c. .....

d. .....

e. .....

43. For what purpose is data collected ?

a. .....

b. .....

c. .....

d. .....

e. .....

44. What would encourage you to analyse data collected and use such information for planning and decision making ?

a. .....

b. .....

c. .....

d. .....

45. How often are data collectors supervised ?

Daily	_____	Monthly	_____
Weekly	_____	Annually	_____
Biweekly	_____	Others	_____

46. How often do you have meetings with your staff ?

a. Daily	_____	d. Monthly	_____
b. Weekly	_____	e. Quarterly	_____
c. Biweekly	_____	f. Annually	_____

47. Are meetings held on a regular basis ?

Yes _____ No. _____

48. What are the usual issues discussed ?

a. .....

b. .....

c. .....

d. .....

e. .....

Outcome of the MIS

49. How would you rate timely submission of reports ?

a. Always on time _____

b. Sometimes on time _____

c. Always late _____

d. Sometimes late _____

50. What are factors that cause delay if any in submission of reports ?

a. .....

b. .....

c. .....

d. .....

e. .....

51. How would you grade the quality of data collected in terms of accuracy ?

a. Always accurate _____

b. Sometimes accurate _____

c. Always inaccurate _____

d. Sometimes inaccurate _____

52. How do you determine if data collected by workers were accurate or not ?

a. .....

b. .....

c. .....

d. .....

e. .....

53. In what ways can quality of data collection be improved ?

a. .....

b. .....

c. .....

d. .....

e. .....

54. In what ways can quality of data processing and storage be improved ?

a. .....

b. .....

c. .....

d. .....

e. .....

55. In what ways can the PHC information system be improved ?

a. .....

b. .....

c. .....

d. .....

e. .....

Inter unit/departmental integration

56. Do you share information with other units /departments ? Please indicate.

a. .....

b. .....

c. .....

d. .....

e. .....

57. .If "yes", what types of information do you share ?

a. .....

b. .....

c. .....

d. .....

e. .....

58. Do you hold meetings with other units /departments ?

Yes _____ No. _____

59. If "yes" which units/departments and how often ?

a. .....

b. .....

c. .....

d. .....

e. .....

60. What are the usual issues discussed ?

a. .....

b. .....

c. .....

d. .....

e. .....

Community Participation

61. Do you meet with members of the community ?

Yes _____ No_____

62. If "yes", what types of information do you share with them ?

a. .....

b. .....

c. .....

d. .....

e. .....

63. Who are the members of the community that you meet with ?

a. .....

b. .....

c. .....

d. .....

e. .....

64. How often do you meet with them ?

a. Daily _____ Monthly _____

b. weekly _____ Annually _____

c. Biweekly _____ Other _____

Computerising the Information system

65. Is computer necessary for the PHC information system ?

Yes _____ No _____

66. If "yes", give reasons

a. .....

b. .....

c. .....

d. .....

e. .....

67. If "no", give reasons

a. .....

b. .....

c. .....

d. .....

e. .....

68. Is Borno State / Bama PHC information system ready for computerisation ?

Yes _____ No. _____

b. If "yes", give reasons

a. .....

b. .....

c. .....

d. .....

e. .....

c. If "no", give reasons

a. .....

b. .....

c. .....

d. .....

e. .....

69. What are the advantages of a computerised information system at the PHC level ?

a. .....

b. .....

c. .....

d. .....

e. .....

70. What are the disadvantages of a computerised information system at the PHC level ?

a. .....

b. .....

c. .....

d. .....

e. .....

71. Which of the following will the use of computer improve ?

Data collection	_____	Information use	_____
Data processing	_____	Planning	_____
Data storage	_____	Management	_____
Data retrieval	_____	Other	_____

Perception about the PHC since devolution to the LGA

72. Has quality of information generated changed since transfer of PHC to the LGA ?

Yes _____ No _____

b. If "yes", How ?

a. .....

b. .....

c. .....

d. .....

73. Has quality of health services to the people changed since transfer of PHC to the LGA ?

Yes _____ No _____

74. If "yes", in what ways ?

a. .....

b. .....

c. .....

d. .....

e. .....

75. List any problems being encountered in carrying out PHC services since take over by the LGA.

a. .....

b. .....

c. .....

d. .....

e. .....

Personal Profile

76. Where are you stationed ?

a. Bama PHC Headquarters _____

b. Bama PHC Zonal Office _____

c. Health facility (indicate which) _____

d. In the community (indicate where) _____

77. What is your rank ?(indicate grade level) _____

78. What is your position in the organisation ?

a. PHC Co-ordinator _____

b. Zonal Co-ordinator _____

c. Deputy Co-ordinator _____

d. Assistant Co-ordinator _____

e. Supervisor _____

f. Other _____

79. How long have you been in the present position ? (indicate) _____

80. How long have you worked for Bama Local Government ? _____

81. How long have you worked in the health system ? _____

Thank you.

Appendix - 3

Interview Questions

Bama PHC Co-ordinator

1. How many staff do you have available for primary health care in Bama, are they sufficient for provision of PHC services ?

2. Is information necessary for you to perform your job ?

3. What types of information do you require ?

4. How do you obtain such information ?

5. How do the various units interact and exchange information ?

6. How do you assess information generated by each unit ?

7. What types of information does your department derive from routine data ?

8. Apart from routine data, does your department collect any other data ?

9. Are you satisfied with quality of data collected ?

10. What reports do receive from the various units ?

11. Are adequate resources available for the information system ?

12. Are health workers responsible for data collection and analysis adequately trained ?

13. How can quality and data collection be improved ?

14. What would enhance utilisation of data produced ?

15. Do health workers understand the importance of data collected ?

16. Why is data collected by other organisations not included in the Bama PHC information system ?

17. How does your department interact and exchange information with related PHC departments in the LGA

18. What are the responsibilities of the District Health committee ?

19. Are they established in all the districts ?

20. How long have you been in service

21. What training did you receive for your present job ?

Questions for District Heads Centred Around

1. Contribution as the District Head to effectiveness of primary health care services in

2. Perception about primary health activities in the District

3. Changes in primary care services since devolution to the LGA

4. Existence of Village and District Health Committees, their functions and contributions to the MIS

5. Communication systems

6. General discussion

Interview with Professor Mousa

The Comprehensive Health Centre in Bama was established and managed by the University of Maiduguri Teaching Hospital and your department is responsible for running the Centre.

1. What services does the Centre provide ?

2. Sir, you are in charge of the Centre, why is it located in Bama and not in another LGA ?

3. You are aware of the primary health care information system, does the Centre make any contribution to the system ?

4. Do officers collect data outside the Centre ?

5. What happen to data collected at the Centre ?

6. What do you do with your copy of report ?

7. When was the last time you received a report ?

9. Do you have any copy of the report ?

10. Is any copy submitted to the PHC Co-ordinator in Bama ?

11. How is the Centre staffed ?

12. What relationship does your centre have with Bama PHC Department ?

13. How does it relate to the Bama PHC Department ?

14. Do you communicate with the Bama PHC Co-ordinator other than at meetings ?

15. General discussion

Interview with at the NPHCDA centred around

1. Distinction between the concepts " monitoring and evaluation" and "management information system"

2. Perception on state of the MIS in general and in Bama LGA in particular

3. Achievements of the national information system

4. Clarification of findings at state and local government levels

5. Future of the PHC MIS

6. General discussion

APPENDIX 4

List of Interviewees

Bama Local Government

1. District Head of Bama
2. District Head of Woloji
3. Co-ordinator, Bama Primary Health Care Department.
4. Assistant Co-ordinator, Water and Sanitation Unit, Bama Primary Health Care Department
5. Assistant Co-ordinator, Expanded Programme on Immunisation, Disease Control Unit, Bama Primary Health Care department
6. Assistant Co-ordinator,. Maternal / Child Health, Family Planning, Nutrition Unit, Bama Primary Health Care Department.
7. Assistant Co-ordinator, Essential Drugs Scheme Unit, Bama primary Health Care Department
8. Assistant co-ordinator, Guinea Worm Control. Unit, Bama Primary Health Care Department
9. Assistant Co-ordinator, Monitoring and Evaluation Unit, Bama Primary Health Care Department
10. Secretary, Local government Council, Bama Local Government, Borno State.

Managers at Bama Primary Health Facilities

Principle Nursing Officer/ Midwife, Tandari clinic, Bama

Bama MCH

Soye Clinic

Dara el jamal clinic

Community Health Assistant, Kashimiri clinic

Senior Community Health Officer, Kumshe clinic

Principle Health Superintendent, Banki Dispensary

Related Primary Health Care Organisations in Bama

Zonal Co-ordinator, Borno State Environmental Sanitation Department.

Zonal Co-ordinator, Borno State Primary Health Care, responsible for Bama, Askira/Uba, Gwoza.

Chief Health Officer, in charge of UMTH Comprehensive Health Centre

Medical Record Officer, the University of Maiduguri Comprehensive Health Centre

Head, Department of Community Medicine, for the Comprehensive Health Centre

State Ministry of Health, Borno State

Director, Primary Health Care, Borno State

Co-ordinator, PHC Monitoring and Evaluation, Borno State

Co-ordinator, Expanded programme on Immunisation, Borno State

Officers responsible for health statistics at the Epidemiologic Department, Borno State

National primary Health Development Agency (NPHCDA).

Assistant, Director, Planning, Research and Statistics, NPHCDA.

Principle Officer, Monitoring and Evaluation, NPHCDA

Principle Officer, Monitoring and Evaluation, NPHCDA, in charge of Borno State

APPENDIX 5

List of PHC Managers that Attended Workshop, On 26 July, 1993

1. Abdullahi kamba
2. Adziri Alura
3. Alfa A. Liman
4. Ba'na Bukar,
5. Baba Gana Mohammed
6. Baba Gana Aji
7. Babe Kum Zannah
8. Fanta B. Kachalla, PHC Department
9. Innocent Onyesom, NYSC Medical Officer
10. Mohammed Lawan, PHC Department
11. Mohammed A. Kolo
12. Mohammed Bukar, Kashimiri Clinic
13. Modu Kagu, PHC Department
14. Modu Abatcha, PHC Department
15. Modu Konduga, PHC Department
16. Yakubu Alkali, PHC Department
17. Saidu Agah, Kumshe Health Clinic
18. Zara Gambo, PHC Department

APPENDIX - 6

Form 001 Completed by Essential Drugs Unit Co-ordinator: Use of Data for decision making, Bama Local Government use of antibiotics in the

001.1: Quantity of Antibiotics Procured Annually

Type of Antibiotic	1988	1989	1990	1991	1992	Estimated Cost

001.2: Distribution of Procaine Penicillin to Health Facilities

Health Facility	1988	1989	1990	1991	1992

001.3: Monthly Distribution of Procaine Penicillin to Health Facilities Per Month in 1992

Health Facility	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec.

001.4: reported Quantity of Procaine Penicillin Dispensed by Health Facility in 1992

Health Facility	Quantity Dispensed

Form 002: Use of Antibiotic in the Community

002.1: Quantity of Antibiotics Received by Health Facility Each Year

Antibiotic	1988	1989	1990	1991	1992

002.2: Quantity of Procaine Penicillin Received by Each Health Facility in 1992

Health Facility _____

Month	Quantity Received
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	

002.3: Diseases Treated with Procaine Penicillin in 1992

Health Facility _____

Month	Total Cases Treated with Procaine Penicillin	Diseases	Number of Cases