DEDICATION

This work is dedicated to:

My Mother — Madam Iquo Usanga who passed away in my second year of this programme.

My wife — Nse Obong

My children — Anieknn

Ino

Martin

ABSTRACT

The purpose of this study was to appraise the operation of leprosy services in selected leprosy institutions in Nigeria, and to assess the adequacy or otherwise of the services in the context of the present national policy on leprosy control. The objectives, therefore, are:

to identify the facilities and services available in leprosy control institutions; to determine the adequacy or otherwise of staffing in the leprosy control institutions; to determine the logistic and allied problems in the operation of leprosy services; to determine the attitude of leprosy workers towards leprosy patients; and to suggest strategies for strengthening and optimizing leprosy control measures in the country.

Five leprosy institutions were selected for this study, one from each of the four primary health care zones into which the country is divided, except the B zone from which two institutions were selected.

The study instruments and methods were questionnaires, interviews and discussions and observations.

The major findings included the following:

(i) services provided at the institutions included

case-finding, chemotherapy, physiotherapy, diagnostic services, health education, general health care and rehabilitation.

(ii) while some of the institutions were adequately staffed for the control programme, others were understaffed, and health educators were conspiciously lacking.

(iii) while the institutions had adequate infrastructure for the control programme (wards for in-patients, a theatre, diagnostic services, electricity and pipe borne water and many satellite clinics), lack of transportation posed a major problem to field work; and

(iv) leprosy workers are not averse to working with leprosy patients, consequently, federal government financial assistance is called for in the control programme to allow for training of staff, recruitment of health educators, and purchase of vehicles.

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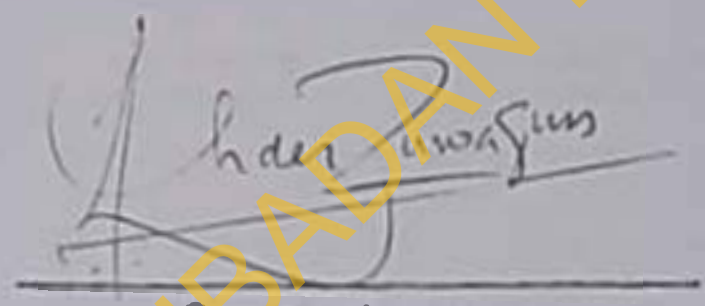
Finally, I am grateful to the University of Calabar which sponsored my study in Ibadan. May God bless you all.

CERTIFICATION

I hereby certify that this work was carried out by Mr. Edem A. Akpan under my supervision in the Department of Preventive and Social Medicine, University of Ibadan.



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LIST OF ABBREVIATIONS

DDS	Dapsone
I.J.L	International Journal of Leprosy
ILEP	International Federation of Anti-Leprosy Association
Lepr. Rev.	Leprosy Review
LGAs	Local Government Areas
M. Leprae	Mycobacterium leprae
MDT	Multidrug therapy
NTBL	National Tuberculosis and Leprosy
TBL	Tuberculosis and Leprosy
WHO	World Health Organization

CHAPTER ONE

BACKGROUND AND JUSTIFICATION OF THE STUDY

Introduction:

Leprosy control has come a long way from the time when all a wife could say was "I raise God and die", to the present time when she can say, "submit to medical regimen and live". This is so now because of the discovery of Dapsone, a bacteriostatic drug that was potent enough to arrest the growth of Mycobacterium leprae, the causative organism of leprosy, and also the discovery lately of the MultiDrug Therapy (MDT) which not only counters the resistance of M. leprae strains to Dapsone but also renders the patient cured if the disease is diagnosed early and given appropriate treatment.

But inspite of these measures to control it, leprosy is still a major public health problem affecting an estimated 10 - 12 million people in the world, of whom about 3½ million are in Africa (WHO 1986). As no preventive methods are yet available in the form of immunization, as is the case in many other communicable diseases, leprosy control is based only on appropriate treatment delivery. The only diagnostic methods are clinical and laboratory and therefore require

specialized knowledge and experience. Moreover, as at now, it is not easy to identify individuals at high risks of contracting the disease, and in order to detect cases, a survey of a large section of the population has to be undertaken. This is expensive and time consuming. Furthermore, treatment lasts for several years and even for life in lepromatous cases. In view of these difficulties, control programmes require the setting up of complex and expensive machinery creating many organizational and logistic problems (Sansarriq, 1981).

Various studies have been carried out on the social and cultural aspects of leprosy. Valencia (1988) observed that the continued presence of leprosy in 33 developing countries of the Western Pacific region may be due to social factors that diminish the effectiveness of treatment, including personal views on disease etiologies, religion, ethnicity, family composition, level of poverty, environmental conditions e.g. quality and quantity of water supply and sanitation; public health status of the community e.g. nutritional status; political structure of the community, politics of leprosy

control programmes and delivery systems. All these come in as predisposing factors of leprosy.

Valencia et al (1982) found that in the Philippines, leprosy patients had problems recognizing the disease at the onset, and on learning at the hospital that they are suffering from early symptoms of leprosy, disappear from their villages to consult a herbalist whose diagnosis is that they are being "hexed". The patients are given "leaves" to boil in their drinking water and to put in their bath water. This is a problem of ignorance.

Constantino (1985) found that some 90 per cent of the Philippines population is disease-prone owing to inadequate access to medical facilities, and furthermore, that 70 per cent of Filipinos are living far below the poverty line. This is a socio-economic problem.

And then there is the [illegible] of social stigma in leprosy. People tend to stigmatize those suffering from the debilitating effects and disfigurement of leprosy. According to one report, most victims of the disease felt they were avoided and considered unclean by other members of the community. Stigmatization hinders case-finding and case-holding as sufferers and their families hesitate or procrastinate in seeking treatment.

These problems are made more difficult because countries where leprosy is a public health problem are tropical, developing countries which have inadequate manpower and financial resources to cope with leprosy and many other often greater public health problems with which they are faced. Thus Sansarriq (1981) sums up the definition of the leprosy problem in global terms as "the total human suffering and hardship due to the social and economic losses of the individuals, the family and the community, caused by the disease in the present and in the future".

A Framework for Leprosy Control

In basic textbooks, disease control is often described as consisting of three levels of activity: primary (prevention), secondary (treatment), and tertiary (rehabilitation). In actual fact, leprosy control has for the past thirty years mainly been conceived almost entirely in terms of secondary intervention, that is, finding and treatment of cases. It should be appreciated that this work has been carried out under extremely difficult conditions, more often than not in rural areas of poor countries. Problems of difficult access, of ignorance and stigma, and of the

absence of amenities, such as electricity, are all very much part of the reality of leprosy control. Serious though the disease may be, leprosy is nowhere among the top priorities in health and thus, a shortage of funds, and of logistic and supervisory supports, are common to all leprosy control programmes (XIII Leprosy Congress, IJL 1989). Moreover, the health authorities of developing countries do not by and large accord leprosy control a high priority in their national activities (Bijleveld, 1982) because other diseases and problems are statistically considered far more important and urgent, for example, malaria, childhood communicable diseases, etc. Effective leprosy control requires more than treatment or chemotherapy. It requires protection for the as yet unsuceptible population, treatment of the disease to prevent its spread, restoration of the treated to his normal social and economic functions, and rehabilitation of the totally disabled. Environmental factors, nutrition, health education are all factors which have to do with the occurrence of leprosy and must therefore be tackled.

For this reason, the author conceptualizes here a frame-work for leprosy contrul programme consisting of ten interrelated services as follows: (1) case-finding,

(2) case holding/case management, (3) chemotherapy, (4) physiotherapy, (5) health education, (6) general health care, (7) laboratory services, (8) rehabilitation, (9) home visiting, and (10) prosthesis. A brief description of each of these follows.

FIG. I. CONCEPTUALIZED COMPONENTS OF LEPROSY CONTROL PROGRAMME.

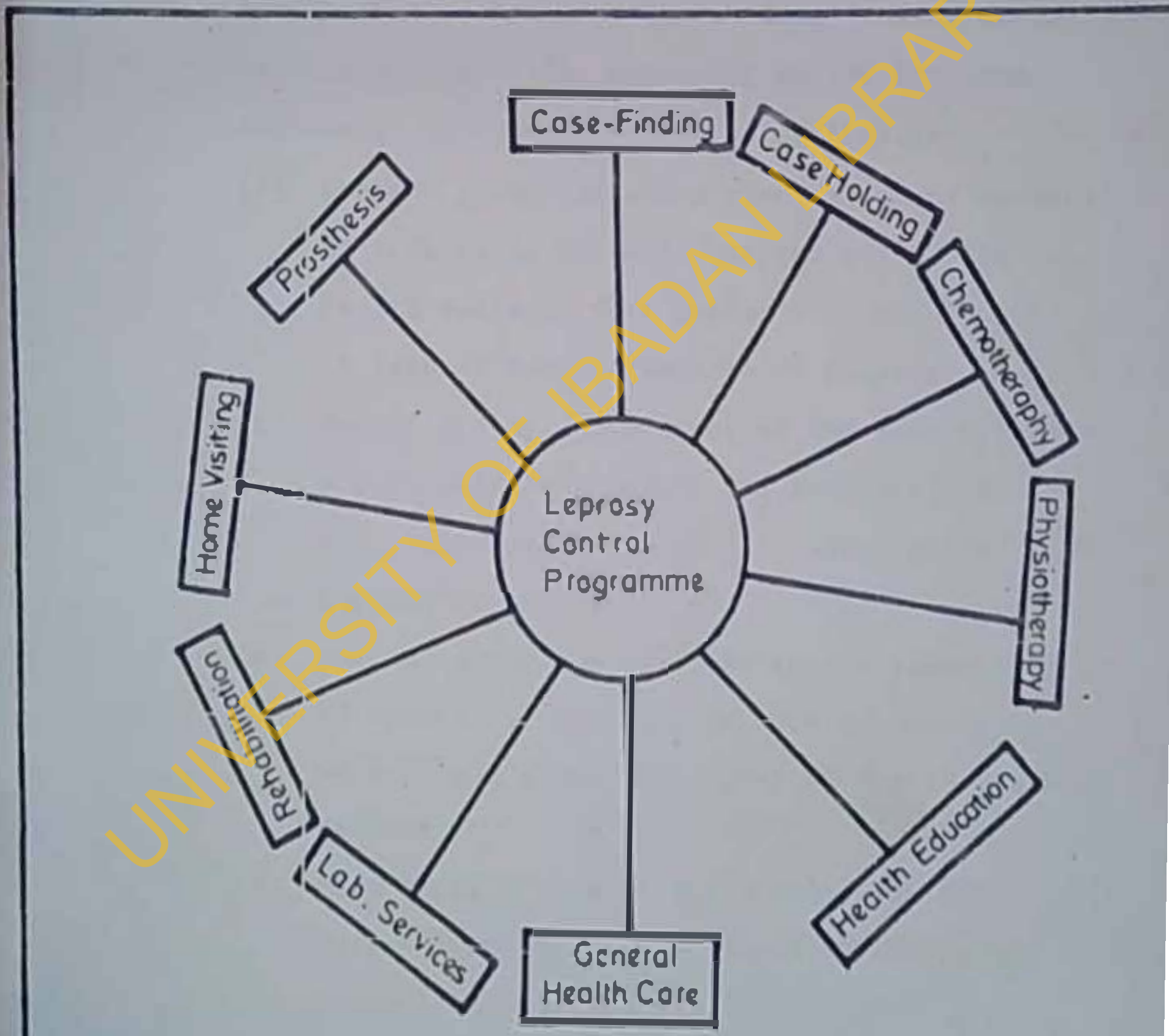

Fig. I. Conceptualized Components of Leprosy Services (By The Author)

1. Case-finding

Case-finding or case detection is the process of identifying an individual suffering from leprosy or any other disease. It is an important component of leprosy control. Case finding could be active or passive, depending on the approach employed. Methods of case-finding include:

(a) Contact survey in which examination of contacts of infectious cases is carried out by the health worker. This method is commonly used in leprosy control service in Nigeria.

(b) School survey which involves the examination of school children, pupils and students. To save cost, this should be done in areas where leprosy is endemic.

(c) Special group survey: This is the examination of special "high risk" groups such as leprosy workers and close associates of the infectious patient.

(d) Mass survey: This is the examination of a target population which might involve a whole community.

Although these methods of active case-finding are useful in identification of cases, they are expensive and time consuming. Besides it is a burden on the scarce

health resources of manpower, money and materials.

Passive case-finding methods include:

(a) Self-or voluntary-reporting, in which the individual patient reports on his own initiative to the health institution for examination and diagnosis.

(b) Casual finding: This is the detection of cases who present in the health institution for some disease other than leprosy.

(c) Referred cases: These are cases referred from other health institutions.

2. Case-holding: Case-holding is the retention of the patients registered for treatment up to-date, and ensuring regular collection of drugs by the patients and regular taking of drugs for the prescribed period. Case holding ensures prevention of disabilities and facilitates laboratory services for follow-up activities. Case-holding is also an important component of leprosy control. In order to ensure successful case-holding, essential resources such as staff, materials, drugs and transportation must be available always (Alabi, 1980).

3. Chemotherapy: This is the use of drugs in the treatment of diseases. In leprosy there are two

methods of chemotherapy - monotherapy (the use of only one drug) and multidrug therapy (the use of many drugs simultaneously). Until 1985 in this country, dapsone monotherapy was the only drug used in the treatment of leprosy. But because of the drug resistant mutants of M.laprae, the causative agent of leprosy, to dapsone, a WHO Study Group recommended in 1982 the use of a combination of drugs, multiple drug therapy (MDT) in the treatment of leprosy. The MDT drugs are rifampicine, dapsone and clofazimine. Multidrug therapy is carried out by trained personnel, and comprises preparatory, intensive, and maintenance phases (Rao 1988). Before being selected for coverage, a district must have, apart from high leprosy endemicity, an adequate infrastructure to deal with leprosy for the entire population, trained personnel who will be able to give effective supervision, and an established base of leprosy control activities.

4. Physiotherapy: This is the treatment of disease without the use of drugs. In leprosy control programme, the primary role of physiotherapy is prevention and correction of deformities. The need to protect or correct deformity cannot be over

emphasized, considering the social stigma attached to leprosy. Most people are not afraid of the disease itself but the deformities. A leprosy patient who is not deformed could conveniently mix freely without being embarrassed. The only way, therefore, to prevent deformities is to detect the nerve damage early and give full physiotherapy course immediately.

5. Prosthesis: This service is concerned with the making of various support gadgets, like crutches, artificial limbs and assessories. Not all leprosy control centres are required to make these gadgets because they can be obtained on order from other centres that make them.

6. Health Education: Health education forms an important component of any leprosy services. The basic aims of health education in leprosy control are to promote acceptance of the programme, dispel the stigma of leprosy and seek the participation of the community in facilitating self-reporting by patients (WHO 1988). Patients health education is in two parts - the prevention of the disease, and the various ways of protecting the partially disabled from becoming totally disabled.

7. Laboratory Service: Many control programmes are hampered by lack of or inadequate laboratory services for carrying out the skin snip examination. Laboratory support is vital for the classification of cases as multibacillary or paucibacillary and for deciding when treatment for multibacillary patients should be discontinued (Rao 1988).

8. Rehabilitation: In leprosy, rehabilitation means the combined and coordinated use of medical, social, educational, and vocational measures for training or retraining the individual to the highest possible level of functional ability (WHO 1980). Although the surest and cheapest rehabilitation is to prevent physical disability and social and vocational disruption by early diagnosis and treatment, many leprosy patients show up at the hospitals after they had reached a stage of advanced disability. Rehabilitation should begin as soon as the disease is diagnosed. Vocational training should be available in leprosy institutions. Rehabilitation and reintegration of the patient in society can only be achieved by the sustained efforts of the patient, the medical, paramedical, and social team, and society as a whole.

9. General Health Care: Apart from leprosy itself, many leprosy patients suffer from other ailments - backache, stomach ache, eye problems, malaria, etc. They, therefore, require general health care, and drugs, other than anti-leprosy drugs, must be made available for their treatment.

10. Home Visiting: This is that part of leprosy service that is concerned with follow-up visits to patients' homes by leprosy staff. The purpose is to trace clinic defaulters, ensure that patients follow-through regimens and review their conditions, and give or replenish drugs where appropriate. This is particularly important where accessibility and transportation to the clinic is difficult.

The National Policy on Health

"A national health policy is an expression of the goals for improving the health situation, the priorities among those goals, and the main directions for attaining them. A national strategy, which should be based on the national health policy, includes the broad lines of action required in all sectors involved to give effect to the policy" (WHO, 1979).

In line with this definition, the Federal Government of Nigeria drew up a report on the National Health Policy and Strategy to achieve health for all Nigerians at

amended by the National Council on Health. The goal of the National health policy "shall be a level of health that will enable all Nigerians achieve socially and economically productive lives. The national health system shall be based on primary health care" (National Health Policy 1985).

The health policy further provides that the health care system shall provide the appropriate base for controlling major endemic and epidemic diseases like malaria, tuberculosis, leprosy, onchocerciasis and diseases associated with poor environmental sanitation. The emergence of the national policy on leprosy control, therefore, is a fulfilment of government health policy of providing health care for all and controlling endemic diseases like leprosy.

The National Leprosy Control Policy

Paragraph 3.6 of the NTBL control programme states thus: "Health for all by the year 2000 cannot be a reality if tuberculosis and leprosy remain major public health problems of grave consequences in our country. The Nigerian Government, therefore, in pursuance of her commitment to achieving health for all by the year 2000 has expressed her absolute commitment to the control of tuberculosis and leprosy." In 1988 a Committee of Experts

reviewed a working paper on a combined programme for tuberculosis and leprosy. The report of the committee is the National Tuberculosis and Leprosy Control Programme, which has now been adopted in principle for the country. The Primary Health Care Scheme approach is to be adopted for its implementation.

A review of some principles of primary health care is in order here. Primary health care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self determination (Alma-Ata;1978). Certain qualities characterize primary health care and these are equally applicable to leprosy control programme. These characteristics are such factors as service;

- availability
- accessibility
- acceptability
- affordability
- applicability

- attainability

- assessability

In leprosy control programme as in primary health care the above, except acceptability factor, would form non-behavioural indicators of provision of services.

The Objectives of the National TBL Control Programme are:

1. To reduce the prevalence of the two diseases to a level at which they no longer constitute health problems in the country, in pursuance of Health for All by the year 2000.
2. To provide effective treatment for all the patients by using Multi-Drug Therapy Regimen as recommended by the WHO for leprosy, and the Short-Course Therapy for tuberculosis.
3. To detect all cases and particularly all the infectious cases in the early stages of the diseases, and effectively treat them as to reduce the bacterial load.
4. To prevent or reduce the disabilities/deformities associated with leprosy and the mortality and complications associated with tuberculosis.
5. To integrate the care and control of the two diseases into the General Health Care Services scheme based on Primary Health care system in the country.

6. Ultimately, to eradicate the two diseases from the communities.

Strategies for the National TBL Control Programme

The following operational strategies will be employed for the control programme.

1. Drug Supply: Drugs will be purchased and supplied to all states in adequate quantities for the implementation of Multi-Drug Therapy of all known/ registered cases of the two diseases.

2. Assessment of Leprosy Situation: All registered cases of leprosy in the various states shall be released. That the required treatment shall be registered. Epidemiological survey is being planned for the two diseases to provide essential epidemiological baseline data.

3. Training: of personnel of various cadres will be undertaken. Orientation courses will be organized for the staff already operating the control programme.

4. Case-detection: Effective early case detection will be organized for early treatment. Case-holding will be an important integral part of the programme implementation.

5. Laboratory Services: Proper laboratory services should be developed in each State to ensure high standard of bacteriological investigations.

6. Disability/Deformity Prevention: This is an important objective in the control programme.

7. Rehabilitation and After Care are also essential integral parts of the programme.

8. Statistical returns: Proper record-keeping and statistical returns are essential for monitoring and evaluation of the programme.

9. Supervision: For effective operation of the programme, a well organized and effective supervision is essential. Proper supervisory machineries will have to be set up at various levels - Federal, State and Local Government levels. They should be complementary to each other and not antagonistic.

10. Referral Services: Each State should establish referral services for the programme.

11. Health Education: Health education is one of the major pillars for the success of the programme. A well organized health education for the patients is important. Community mobilization for their active involvement and participation are integral part of leprosy health promotion and education

support measures. All available media should be employed in each State for this purpose. Efforts should be made to motivate youth and other organizations for IEL work, and to participate in the control programme.

Need for Appraisal

In his article, "Wanted - A leprosy policy," Price (1963) outlines three major needs in countries where leprosy is a health problem. These are, first, the control of early infection. This is specially desirable as it is generally agreed that early effective treatment will avoid the great majority of disabilities and deformities due to leprosy and in general result in cure. Second, the restoration of those who are moderately disabled, and third, the care of those who are too disabled to be rehabilitated and are in effect permanent cripples. According to WHO the general aims of leprosy control are to protect the healthy population, to bring about a reduction of the infection in the human reservoir by effective chemotherapy, and to provide adequate early treatment for all detectable cases, so avoiding the possible disabling sequelae of disease (WHO 1977).

Appraisal of a service involves a consideration of the resources which are manpower or human resources, materials/equipment or the infrastructures, and finance. Even when these resources are readily available, how they are operated determines the success or failure of a programme. Despite the long existence of several leprosy institutions in various parts of this country, there is not much evidence that any real impact has been made on the leprosy situation because of inadequate funding at the Federal level, the lack of adequate number of trained personnel, and the subsequent deterioration of leprosy work at the state and local government levels.

But recently the Federal government has embarked upon a five-year plan of action to more effectively tackle leprosy in the country. The question that readily comes to mind is: "How prepared are the leprosy institutions to take up this challenge vis-a-vis the present state of leprosy control services in the country? The author believes that a study of this order will be useful to the government (the policy makers), the health care providers (doctors, nurses, etc) and the health consumers (the patients and the general public). It will enable the various levels of Govern-ment to know what areas of leprosy control need more

in-put, the leprosy institutions to see leprosy as a national programme and act in concert with the national objectives, and not just as a State affair. This study will set a base for the start of the new programme and at the end provide the basis for comparison. It will also be of immense value to the Non-governmental Organizations who support leprosy servies in this country, to know areas support is most needed, apart from drug supply.

Magnitude of the Problem

Until recently leprosy seemed to have been a forgotten public health problem in Nigeria. Many people were awakened to the consciousness of this problem on 29 January, 1969, when Nigeria joined one hundred other nations of the world to observe the 35th World Leprosy Day. It was then that the Nigerian Minister of Health announced that there were 475,000 leprosy patients in the country of whom 250,000 were registered.* The concept of a World Leprosy Day was originated in 1953 by M.Raoul Follereau, to bring the needs of leprosy patients before governments and the public. This day is observed on the last Sunday in January, in over one hundred countries (Leprosy Review, 1973).

*The Punch, Thursday, January 24, 1974.

Estimates of the number of Nigerian leprosy patients had been made before and after that announcement. In an appraisal conducted in 1975, it was found that the mean prevalence rate among registered cases in the country was 5.0 per thousand varying from 0.10 to 17.0 per thousand. In 1987 the number of registered cases was 282,000 and in 1988, 225,000. In June 1989, the record showed a total of 193,715 patients on register, giving a prevalence varying from 0.09 to 6.38 per thousand, with an average of 1.73 per thousand for the whole country. With an estimated population of about 104 million people in 1987, the actual prevalence is expected to be higher with grave public health implications. In 1988 alone, there were 5,726 new cases added onto the register (NTBL 1990). Though these figures are erratic, it is generally known that Nigeria has the second largest leprosy campaign in the world, next to India. The problem of under-reporting or non-reporting is easily discernible in the above estimates, and Tables 1(a) and 1(b) further attest to the inconsistency of reporting.

Table 1(a) Number of Reported Leprosy Cases by States

December 1987

State	In-patients	Out-patients	Total
Akwa Ibom	77	1,796	1,873
Anambra	-	-	-
Bauchi	-	-	-
Bendel	2,530	7,967	10,497
Benue	72	28,843	28,915
Borno	-	21,643	21,643
Cross River	66	2,052	2,118
Gongola	755	14,130	14,885
Imo	115	986	1,101
Kaduna	60	54	114 •
Kano	-	-	-
Katsina	-	-	-
Kwara	365	399	764
Lagos	-	2,194	2,194
Niger	-	-	-
Ondo	472	306	778
Ogun	178	259	437
Oyo	25	865	890
Plateau	149	669	818
Rivers	30	209	239
Sokoto	2,270	46,669	48,939
Abuja (FCT)	-	-	-

Source: States Ministries of Health Dec. 1988.

- = Data not available

• = Leprosy Hospital, Zaria, only.

Table 1(b) National yearly report of leprosy cases, 1975-1987

Year	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Cases	5914	1804	5214	5888	9235	9820	8903	9991	14319	8800	8293	11659	11874

Source: Extracted from Data prepared by the Medical Statistics Division. Federal Ministry of Health, Lagos. 1989.

The problem of underreporting is summed up thus:

(a) those not reported cannot be treated, and becomes carriers who spread the disease,

(b) government cannot plan adequately for effective leprosy control.

There is also the problems of resources. As mentioned earlier, leprosy services in Nigeria started in the early 1930s, but there is not much evidence that any real impact has been made on the leprosy situation. The problem of lack of manpower, funds, logistic and supervisory support, are common to most control programmes. As noted in the XIII Leprosy Congress State-of-the Art Lecture, (1989), the problem of access, of ignorance and stigma and of the absence of amenities, are all very much part of the reality of leprosy control.

There is also the problem of attitude of leprosy workers toward leprosy. Though La Piere (1934) in his unidimensional concept of attitude says that attitude is not a good predictor of behaviour, yet because of the multifaceted nature of attitude (Krech and Crutchfield 1948, Cartwright 1949, Katz and Stotland 1959) we know that attitude can and does influence behaviour. Nigerian workers are not attracted to leprosy work because of the stigma attached to it, poor salary and lack of incentives. To those who take on the job, it may be either a means to wait for an opportunity for a better job, or just to make a living. Such attitude would invariably affect the control programme.

In almost all countries where leprosy is endemic, activities aimed at controlling the disease started as vertical programmes, resulting in the following situations:

(a) lack of continous core, as staff in vertical programmes often have only occasional contacts with the patients as clinics are conducted periodically.

(b) vertical programmes provide insufficient coverage of population.

(c) too much attention is given to clinical and rehabilitative questions as compared with the control of the disease.

(d) job satisfaction and career opportunities are lacking for specialized leprosy field workers.

(e) vertical programmes are often dependent on donor agencies, so there is a danger of collapse of care when donors withdraw their assistance (Feenstra and Tedla, 1988).

An operational appraisal, therefore, will look into such indicators as the day-to-day operation of leprosy services, staffing and supervision, the logistics of delivering services, drugs supply, accessibility, availability and affordability of services, and workers' attitude towards leprosy.

Justification of the Study

Leprosy as a disease often fills many people in this country with fear whenever the word is mentioned. A study of this nature will help allow the fears in such people as to its cause, spread, and curability.

Although some studies had been done on the Impact of Perceived Severity of Sickness and Benefits of Treatment on Compliance of Leprosy Patients in Sokoto State (Adamu 1988), and another one on Case-finding and Case-holding in the Leprosy Control Scheme of Cross River State (Okure 1988, study yet to be completed), no study is known to have been done specifically on the factors affecting leprosy services in the country. A study of this nature is therefore deemed necessary.

Furthermore, now that the Federal Government has given its political will and commitment to leprosy control in this country, a study on the operation of leprosy services could be justified on the ground that it is the

first study of leprosy services in this country to be based on the national policy on leprosy control.

Finally, in pursuance of the national policy on leprosy control, the Federal Government has drawn up a five-year plan of action (1990-1995) to reduce leprosy in this country to a level that it will no longer constitute a public health problem. This study could furthermore be justified on the ground that it will establish a baseline for measuring the success of the control programme at the end of the five-year plan.

CHAPTER TWO

LITERATURE REVIEW

Leprosy: The Global Picture

Leprosy is still a major problem affecting about 15 million people in approximately 50 countries of the world (Birdwood 1988); the World Health Organization estimate is 11.5 million (WHO 1985) Leprosy is most prevalent in tropical countries. This is not due to the climate because the disease exists in cold countries too. Because of the fear, shame, and social stigma associated with the disease, leprosy is greatly under-reported, and some countries are reluctant to reveal its true prevalence. The exact number of leprosy patients is therefore unknown.

Prevalence

The prevalence of leprosy of all forms in areas usually regarded as highly endemic for the disease is around 2 or 3 per cent. The maximum prevalence is probably 5 per cent, and is found in parts of Burma, Northern Nigeria and Cameroun (Bechelli and Martinez Dominguez, 1972).

Leprosy is highly prevalent in Central Africa and South-East Asia, with prevalence rates about 10 per 1000. Although most leprosy sufferers live in Asia, the

prevalence rate is highest in Africa (often 10 - 40 per thousand) (Thangaraj and Yawalkar, 1986).

Globally speaking, India has the greatest number of leprosy sufferers. With about 4 million cases (WHO 1985) nearly one quarter of the world's sufferers live in this country. This is followed by Nigeria, with about 500,000 cases, followed by Brazil which has the largest number of leprosy sufferers in South America; then Ethiopia, Venezuela and Malesia, in that order. Endemic foci exist in the United States of America in Texas, Louisiana and Hawaii.

At the end of 1976, there were 3,599,949 registered cases (Weekly Epid. 1979) reported from 154 countries from the six WHO Regions. The following figures, based on the experience of the WHO Leprosy Advisory Team in 1962 - 1966 and on data from reports on many countries, provide a conservative estimate of the real situation.

The estimated number of cases by WHO regions are:

Africa	3,500,000
America	400,000
South-East Asia	4,510,000
Europe	25,000
Eastern Mediterranean	160,000
West Pacific	2,000,000
	10,095,000

The most recent figures for registered cases by continent collected by ILEP show that 4,334,602 cases were known in 1980.

Altogether it could be assumed that at least 5 million leprosy patients are registered in the world today, this represents an increase of roughly 75 percent over the last 15 years (Sansarvig,1981).

According to WHO Expert Committee on Leprosy Sixth Report (WHO 1989), over the past twenty years, there has been a steady increase in the number of registered cases reported: about 2,850,000 in 1956, 3,600,000 in 1976 and 5,400,000 in 1985. And we know that by implication the number of registered cases is only a tip of the iceberg.

Leprosy in Africa

Out of a total of 12,000,000 estimated leprosy patients, nearly 4,000,000 are living in Africa (Cap 1981) in a population of 460,000,000 or an overall estimated prevalence rate of nearly 10 per 1000 (WHO 1980). Cap (1981) observed that it was difficult to compare prevalence rates from one country to another as the quality and reliability of the available information vary greatly. According to him, a breakdown of leprosy prevalence rates in Africa is as follows:

Table 2. Prevalence of Leprosy in Africa by Regions

Region	No. of Countries	No. of Registered Patients	Prevalence rate/1000
West Africa	15	839,792	7.4
Central Africa	8	227.036	4.7
East Africa	15	328,124	2.8
North Africa	4	33,173	0.6
South Africa	3	16,600	0.6
TOTAL	45	1443.724	5.7

Source: J.A. CAP. Leprosy Review (1986) 52 (Supplement), 53 - 60

Epidemiology

Health education and control of leprosy like any other communicable disease, derive from the epidemiology of the disease, and the habits and beliefs of the people. Hence an understanding of the epidemiology of leprosy is pertinent.

Man is considered to be the only source of infection. The traditional, and simplest explanation of the spread of leprosy is by the close prolonged contact of the susceptible individual with the

infectious (open) case (Brubakar 1976, Thangaraj & Tawalkar 1986), though transcient contact has been reported (Lucas and Gilles, 1984). Host susceptibility to leprosy is important in understanding the epidemiology, natural history and clinical classification of leprosy, as it shows considerable variation, from absolute refractoriness to an apparently complete absence of resistance. Leprosy is not an hereditary disease. Infants born to lepromatous parents if separated soon after birth and protected from exposure, escape the disease.

Incubation period

The incubation or latent period of leprosy may undoubtedly be very long, and is almost certainly longer than for tuberculosis, for example. Data from the famous Nauru leprosy epidemic (Wade and Ledowsky 1952) in which the disease was introduced at a known time into an island community previously free of it, indicate a minimum period of about 8 years, but this Nauru incident was exceptional. Luru, cited in the Newell (1966) estimated an incubation period between 2-5 years in children; Feldman (1973) suggests about 3 years for non-lepromatous, and nine years for lepromatous disease.

The incubation period for such a slow-growing organism (Mycobacterium leprae) requiring cooler, protected sites in the body is not known with certainly, but it can be as long as 20 years (Birdwood, 1988); 3 months to 40 years (Dharmendra 1978); the average being about 5 ± 2 years.

Incidence rates generally rise to a peak between 10 and 20 years of age, and then fall. Prevalence rates generally rise to a peak between the ages of 30 and 50 years and then fall slowly (WHO 1985,716)

Male - Female ratio: Leprosy affects more males than females (Brubaker,1976). According to Noordeen (1966), the male to female ratio in adults is 2;1. This sex difference is greater in adults than in children (WHO 1985, . Brubaker,1976). The incidence of conjugal leprosy is surprisingly low (2-5%) (Thumgurai and Yawalkar 1986, WHO 1980 and Mohammed Ali 1965). Americans, Europeans, Anglo-Indians, Chinese and Japonese belong to the high susceptibility group and are more prone than Africans and Indians to contract multibacillary leprosy.

In consideration of all these factors, Birdwood (1988) concludes that the problem is thus not so much the potency of the organism, rather the rundown state of man, or in the case of children, the immaturity of their

immune system.

Source of infection:

Man is considered to be the only source of infection. Each day we are all infected with hundreds of viruses, bacteria and other types of organisms. The immune system with its special defence cells and antibodies, is able to recognise and destroy these invaders. This remarkable process prevents the infection developing into disease. The appearance of disease means that the immune system has partially failed. This distinction between infection and disease is very important in leprosy and tuberculosis. Many people are infected but very few develop the disease. M.leprae was taught to be only mildly infectious. About 50 percent of the subjects with occupational or household exposure to M.leprae for more than one year gave a positive immune response to M.leprae using lymphoblast transformation test (Godal and Negussu 1973). However, it has been reported that only 5.8 percent of close contacts as between spouses develop the disease (Mohammed Ali 1965). Therefore it is clear that although the infectivity of M. leprae is high, its

pathogenicity is very low.

Mode of transmission

It is now known that the germ that causes leprosy, Mycobacterium leprae, can remain alive in dried nasal secretions up to 7 days (Davey and Rees, 1974), and in moist soil at room temperature for 46 days (Ramu 1981; WHO 1985)

The patients with the lepromatous leprosy discharge Mycobacterium leproe into the surrounding environment through nasal secretions, saliva, exudate from ulcers on lepromatous skin, and normal secretions of the sweat glands (Job, 1981). According to Portners, No. 20, when an untreated lepromatous patient coughs he may spread 10 million living bacilli into the air. So we know how the bacilli leaves the body; we do not know for certain how they enter it.

Transmission may be direct or indirect according to some researchers. It is reasonable to accept that direct contact is perhaps for more effective in conveying the disease than indirect contact. Orgonism can be carried live in clothes, objects and by the patient, food, water, dust, etc. The floor of the house or hospital or the ground where the infected material is shed, all contain live bacilli. For indirect transmission to occur, some

workers have suggested that blood sucking insect like flies, bed bug , and mosquito may carry M.leprae (Dungal 1960, 1961). As none of these is scientifically proven, Job concludes that the research for the transmission of the M.leprae is like the story of a few blind men who went to see an elephant. Each drew a conclusion for himself as to what an elephant was like, depending on what part of the elephant he felt.

Traditional Leprosy Control Activities

In spite of the difficulties encountered in leprosy control as discussed in the Introduction, p.2, leprosy control is today carried out in most leprosy endemic populations of the world. For the purpose of this review, we may consider these leprosy control activities as involving several steps: case prediction, case finding, case diagnosis, case management, case surveillance case rehabilitation, and of course, the ultimate goal, case prevention. This is what leprosy control means. A brief explanation of each of these follows.

Case Prediction: It would be useful to be able to predict who is going to develop clinical leprosy so as to be able to target prophylaxis or case finding. Indeed, the prediction of disease - in the sense of the identification of high risk individual, or group - is

already an important part of many routine leprosy control programmes, at least in so far as household contact tracing is carried out. This exercise is based upon the evidence that household contacts have predictably high risks of developing leprosy, as has been demonstrated in epidemiological studies (Doull et al 1942; Fine 1982). The rationale has thus been that as we recognise household contacts to be at particularly high risk of developing the disease, it is cost effective in terms of case finding activity, and perhaps even necessary in terms of ethical responsibility, to examine them repeatedly so as to be able to identify and treat any new case at the earliest possible stage.

Case finding and case diagnosis: The finding and diagnosing of leprosy cases rely mainly upon clinical signs, supplemented by slit - skin smear bacteriology. Case detection can be done through house to house total population survey. But this is time consuming and expensive. School survey is done in many endemic areas. Self-detection through health education seems to be the most cost-effective method.

Case Management: Routine treatment of clinical leprosy is largely a matter of the provision of proper anti-microbial drugs. Multiple drug therapy (MDT) is now widely practised throughout the world with different regimens recommended for paucibacillary and multibacillary patients. These two patient groups are conventionally defined in terms of Bacteriological Index (BI) assessed through a skin - slit smear (WHO Study Group 1982).

Case Surveillance: The recent shift to short course drug regimens has introduced a new problem into leprosy control - that of surveillance during the months or years after completion of the prescribed therapy. The risk of relapses during this post treatment period is not known, but of universal concern. Current recommendations, for example, by the WHO, are that ex-paucibacillary patients should be examined annually for 2 years and ex-multibacillary patients should have slit-skin smears performed yearly for a minimum of 5 years after completion of therapy (WHO Study Group 1985).

Case Rehabilitation: This is an important aspect of leprosy control, though one which is sometimes forgotten in basic research circles. In leprosy, rehabilitation

means the combined and coordinated use of medical, social, educational, and vocational measures for training or retraining the individual to the highest possible level of functional ability (WHO, 1970). Disabled patients require assistance of many kinds, from reconstructive surgery, physiotherapy and ulcer care, to economic, social and psychological support. Rehabilitation is important and will compete for the funds available for leprosy control.

Case Prevention: Case prevention or "primary prevention", according to conventional terminology, is the most attractive approach to disease control. Prophylatic vaccination is of course the example par excellence of an immunological tool for disease control. It is probably in this context that the most hopes have been pinned on immunology and immunologists as potential saviours in the battle against leprosy. But until such vaccines are discovered and used successfully, it is the belief of this author that case prevention can be done through behaviour change since many diseases are perpetuated through human behaviour.

According to Meade (1976), the primary prevention of leprosy (i.e. its prevention in those so far free of clinical disease) has so far been approached in five

general ways:

(a) Isolation: As already pointed out, it has been claimed that the segregation or isolation of leprosy patients in Norway contributed to the decline in incidence ther. It may be that where leprosy incidence is low anyway and where there are considerable distances between groups of patients, isolation is an effective method. In highly endemic, heavily populated areas, isolation has not been successful, besides usually being inhumane. The threat of isolation is probably one of the most effective deterents there is to diagnosis and treatment.

(B) Vaccination: There is at present no antileprosy vaccine. The three major BCG Trials in New Guinea (Scott, Wigley and Russel 1966; Russel 1973); Uganda (Brown et al 1968; Stone and Brown 1973) all suggest that some protection against non-lepromatous leprosy is given by BCG, but the extent of this protection varies from about 20 percent in Burma to about 80 percent in Uganda.

(c) Chemoprophylaxis: Is effective in reducing leprosy incidence (Dharmendra et al, 1965, 1967, Noordeen 1964; Sloan et al 1971), but involves the long term

administration of sulphones in doses which are associated with the development of resistance.

(d) Chemotherapy of known cases: The idea is that treatment of known cases might prevent transmission to those so far not affected.

(e) Environmental changes: Where infectious diseases have been successfully prevented or eradicated, this has usually been achieved by environmental changes (using this term to include social and economic development, as well as specific measures such as improved water supply, sanitation and housing). This approach may have much to offer in the case of leprosy, but it is still very much at a research stage (Meade, 1974).

The role of nutrition in leprosy control

As mentioned earlier, when leprosy was wiped out of Europe in the 15th century, there were neither vaccines nor drugs against it. The standard of living had improved and so people fed well on balanced diets. Nutrition builds up body resistance to diseases, leprosy not excepted. In a study in Norway, a significant association was found between production of milk per person and leprosy status of the farm . Median total farm rates were 80 and 28 respectively. These findings strongly support a hypothesis advanced by

several authors (Chandra;1974, Skinsnes 1976) that malnutrition, and particularly a specific protein deficiency, may increase the individual susceptibility. In Reporting on her visit to a leprosy settlement in Nigeria 1945, Lengauer (1945) said "---- all agree that our efforts to cure lepers are handicapped by food deficiency. All Africans are under-nourished, some because of ignorance, others because of tribal taboos, still others because of inertia and conservatism. Under-nourishment can be fought with propaganda and education. But we must not forget that there are also real paupers among lepers who suffer not from deficiency of food but simply from starvation: they cannot afford to spend even one shilling per week for food. They are children, women, men who cannot farm, and if we do not support them with food, our medical efforts are useless".

For this reason, many leprosy institutions in the country undertake feeding the patients. This not only ensures their survival but increases the efficacy of the medical treatment.

The Origin of Leprosy:

Leprosy is as old as mankind. It is generally believed to have originated in Asia. Most probably it

originated in India about 650 B.C. (Thangaraj and Yawalkar 1986), from where we have the first authetic description of different types of leprosy, described as "Kushtha" in Sushruta Samhita, in 600 B.C. According to Vagbhata (600 AD), the name "Kushtha" was derived from Kushnati which means "eating away" in Sanskrit.

In China, leprosy was first recorded in the NeiJing, one of the earliest Chinese medical classics (400 B.C.) in which the clinical features were described under the name "Da Feng" (Holde and Gan-Yun 1982). The earliest Japanese references to leprosy are also from the 4th Century BC (Browne 1984).

Leprosy Control in the Middle Ages: Specific policy at leprosy control dates back to the middle ages.

At the beginning of the 13th Century, leprosy was rampant in Europe, having spread from Egypt to Asia Minor and thence to Europe and at that time there were about 19,000 leprosaria in Europe. In the middle ages in Europe, leprosy was a far more acute and disfiguring disease than what we see now in our society and because of the terror to which it gave rise, laws were passed all over the continent regulating the Conduct and movement of those afflicted. In many places

they were banished from human communities. They were compelled to wear identifying clothes and to warn of their presence by means of a horn or bell (Hanlon 1964; Holland, Detels & Knox 1984). Around the 15th Century, leprosy had virtually disappeared from Europe - no vaccines, to drugs. The technological revolution had improved - no over crowding, while environmental and personal hygiene had also improved. People were able to afford a balanced diet.

Leprosy in the Bible

It is a general opinion that some of the most ancient records of leprosy are to be found in the Bible in the description of diseases embraced by the Hebrew word "Zaraath". The word leprosy, mentioned several times in the Bible, but especially in the Book of Leviticus, Chapters 13 and 14, and Matthew, Chapter 8,. is a translation of the Hebrew word Zaraath. According to H.P. Lie, several authors have lately expressed certain doubts about the accuracy of this opinion. Lie (1938) laboriously tries to show that the leprosy of our day is different from the leprosy of the Hebrew times, in that, among other reasons the Hebrew leprosy could be cured in a very short time, whereas modern day leprosy takes a very long time to cure. He that as it

may, we know that modern leprosy can be cured fast depending upon how early it is diagnosed and treated with the proper drugs.

Leprosy control in developed countries

Japan was one of the early industrialized countries to adopt a leprosy control policy in 1909 (Saikawa 1981) when it decided to open leprosaria and to adopt segregation as its basic policy for leprosy control, and this policy has been practised ever since for the past seventy years, though segregation is no longer compulsory. Consequently as at 1980, Japan had a leprosy prevalence rate of 0.82/10,000.

In Norway several factors combined to account for the disappearance of leprosy from that country, Irgens (1981) has shown from studies by others that nutrition, isolation and immigration were factors that led to the decline of leprosy in Norway. The Norwegian experience demonstrates the need for and benefit from an adequate system for acquisition of information on leprosy patients. Such a system is important from a practical preventive as well as a general epidemiological point of view.

Thus, the Norwegian experience supports the initiative taken by WHO in establishing information systems in countries where leprosy is prevalent today.

Leprosy Control in Nigeria

The first mention of leprosy in Nigeria, from available evidence, is in "Leprosy" (Rogers and Muir) page 29, where the following table is given of leprosy incidence in the British Empire (Lepr. Rev. 1936):

India	1921	Census	102,573	0.32 per mille
West Indies	1921	Census	1,189	0.74 per mille
Nigeria	1921	Census	32,000	3.20 per mille

The available record of the earliest leprosy settlement in Nigeria is from Robertson's (1932) Second Annual Report of Garkida Leprosy Colony in September, 1929, which started with a nucleus of 36 far advanced cases. In the modern concept of primary health care, the Garkida Leprosy Colony was an example of a multi-sectorial cooperation health venture, for three organizations and agencies were interested in promoting the colony, viz: The Adamawa Native Administration gave 500 acres on which to build the colony and farm land; the British Empire Leprosy Relief Association (BELRA) gave two donations for the first buildings, and the American Mission to Lepers

gave money annually for permanent buildings, touring, propaganda, medicine, school and industrial activities; the Native Administrations in the surrounding provinces were giving one shilling per week per case for food, and the Church of the Brethren Mission (USA) was furnishing the staff, some financial aid, and acting as a unifying agent for all those named above.

The concern for leprosy patients country-wide began in 1936 when the Medical Secretary of the British Empire Leprosy Relief Association visited Nigeria and reported on the leprosy situation. According to the report (Lepr. Rev. 1936a) there were 19 Leper Camps and settlements in 1936. Notable among them were the Itu Leper Settlement, with 1,514 patients in residents drawn from Calabar, Cwerri, Ogoja, Benin, Onitsha, Warri and Cameroun Provinces. Others were Uzuakoli (850), Yaba Leper Colony, Lagos; Zaria Leper Camp, Katsina Leper Camp, Maiduguri leper Camp, Garkida Leper Settlement, Oji River Settlement, Ogbomosho Leper Camp and Mkar Leper Settlement. In his report the Medical Secretary observed that leprosy was bound up with the presence of other accompanying and predisposing diseases, with dietary deficiencies and insanitary conditions, and with ignorance and illiteracy. "Till these are dealt with" he concluded, "leprosy is likely to remain".

Segregation

The idea of segregation was not a European invention in Nigeria. Davey's (1938) report on a Leprosy Survey at Etiti Ama, Nkporo in South Eastern Nigeria in 1938, showed that in spite of ten years of segregation, 65 cases of leprosy remained at large in the village. It can be inferred from this that the natives had known segregation as a control measure long before the European intervention. Brown (1966) noted and commended the role of leprosoria and treatment villages in tropical Africa, notably in Nigeria.

In 1935 a Church of Scotland Missionary wrote about the plight of the people with leprosy in one of the districts where three "leper" villages had been established by the patients themselves. These places were isolated from main roads so that doctors could not go to them to give treatment. This ultimately led Brown (1936) to recommend that the basis of control in Southern Nigeria should be the establishment of provincial settlements or leprosaria (one to each province), and the creation of a system of dispensaries (local clinics) attached to special satellite villages in which the patient should live; one such special village to be created for each group of compounds.

Native Treatment: Hydnocarpus oil and its esters prepared locally from a plant was used in the treatment of leprosy in Itu, Osslomo and Uzuakoli Leprosy Colonies when as yet sulphone drugs were not discovered. Between April 1931 and 1932, 1012 patients were treated with this preparation with very encouraging results (Macdonald 1933).

In a self-created leprosy village in Kukuruku, in the Benin Province in Southern Nigeria, palm oil was used in the treatment of leprosy. Its use was accidentally discovered by a leprosy patient who had left his village "from shame" and lived alone on the bank of a river. The man collected kernels from palm trees around and made oil for his food. He once tried to rub it into his skin and found this pleasant. He continued the practice and noticed that his health was improving. He then sometimes drunk the oil in its natural form, and concluded that the improvement in his health was due to the palm oil. Then deliberately he started his treatment with palm oil, everyday rubbing his body with it and drinking about half a tea cup, and prayed to God for cure. At the end of the year he was cured and he decided to help other lepers. Based on

this, Dr. Lengauer (1945) who gave this report, made many useful conclusions:

(i) That "lepers are not adverse to segregation, providing that treatment is offered;

(ii) "The prayers of native doctors have a response in the religious craving of Africans and are a psychological factor. To cure a leper one must make him happy. Religious life in the leper settlements and villages is necessary for this happiness."

In another report for the year April 1931 - 32, on the Itu Leprosy Colony, Nigeria, presented to the Calabar Provincial Committee of the British Empire Leprosy Relief Association (BELRA), Macdonald (1933) noted that 1012 patients were treated during the year, and were drawn from Owerri, Calabar, Ogoja, Onitsha, Warri, Benin, Cameroun, Togoland and Sierra Leone. There were six schools in the colony: Children's Ibo School, Children's Efik School, Men's Ibo School, Women's Ibo School, Adult Efik School, and Adult School for the teaching of English, all sponsored by private contribution.

Brown (1933, 1934, 1934b) made three consecutive reports on the Leprosy Colony, Uzuakoli. The first

Annual Report (March 1933) showed the preliminary work done on the construction of buildings for the opening of the colony. The second annual report (March 1934) showed that the number of patients had increased to 436, and that the social, recreational and religious work in the Colony had been provided for financially by the Methodist Missionary Society. Clothing and blankets have been provided for the poor; presents are given to all patients at Christmas. (Till today, the Methodist Mission is still very active in supporting the Anti-leprosy work in Uzuakoli).

The third annual report (1934) of the Native Administration Leprosy Colony, Uzuakoli, Nigeria, showed that the introduction of individual farming, led to reduced subsistence allowance of six pence per week for meat, fish, salt, tobacco, etc. It is worth not ing that apart from the treatment given to patients, these reports also dealt with patients' welfare as an important aspect of leprosy services.

Lowe (1952) reported on the slow but successful treatment of leprosy with sulfone DAPPS in Uzuakoli (1949 - 1951).

Even in the days when primary health care was unknown, community participation was important to the

success of leprosy services in Nigeria. Cochrane's (1952) Report on the visit to Nigeria, 15 March to 1 May 1952, confirms this as contained in his two conclusions.

> "The success of the anti-leprosy Campaign was due to (a) The enthusiasm of the people to see that active, and especially infective, cases are segregated, and (b) The development of segregation camps to such a high degree that in the Gwerri province the majority of cases, particularly the infective ones, were in segregation units."

This makes the modern day leprosy hospital or leprosarium still valid as isolation centres for infective cases.

Dr. C.M. Ross was the pioneer ofanti-leprosy work in Northern Nigeria. In 1952 experiments were made in the Katsina and Zaria Provinces of the Northern Region in acquiring necessary information for leprosy control policy suitable for the region. In a pilot scheme, Ross (1956) demonstrated that patients in the Northern Region will attend for treatment regularly if treatment is made available to them in their own districts. This

important discovery, availability and accessibility has become a corner stone in the leprosy control policy of many countries of the world.

The fundamental difference between segregation of leprosy patients in the Northern Region and in the Eastern Region is that, whereas in the North patients live with their families in segregation camps or villages, in the East only the patient lives in the segregation camp or village. It was the remarkable results in leprosy control as a result of this system, that led Cochrane (1953) to commend highly the work in the Eastern Region.

Integration with PHC - Primary Health Care

Integration is defined as "a series of operations concerned in essence with the bringing together of otherwise independent administrative structures, functions and mental attitudes in such a way as to combine these into a whole" (WHO 1962).

In its first report, the WHO Expert Committee on Leprosy Control (1953) stated that leprosy should not be considered as a disease apart but as a general public health problem in countries where it is endemic. The idea of Integration was not characteristic of the anti-leprosy work of the pioneers in this country. See

effort at it, however indirect, was only visible in the Northern Region where Ross (1956) introduced the opening of leprosy clinics at the dispensaries.

Browne, S.G. (1972) gave medical, economic, operational, social and administrative reasons for integration, while Schaller (1969) stressed the economic short-comings as the most important reason for integration. There is no doubt that the economic factor is among the most important and decisive factors in most developing countries, but integration is viewed these days mostly as a means of reducing the stigma on leprosy.

Bijleveld (1982) has much reservations about the viability of leprosy control within primary health care. He contends that the visible crippling of the leprosy patients, the leprosy beggar problem in a nearby town, fear of infection especially from open wounds, the lack of effective traditional remedy, smouldering doubts about the curability of leprosy, dread of isolation, all help to clarify why the community finds leprosy a pressing public health menace, and continues to reject integration and express a preference for seeing leprosy patients consigned to a special, distant leprosy hospital where they would not endanger others, nor

affront them with their disfigurement.

Dharmendra (1965) sees need for a balanced approach to leprosy control. He argues that since isolation as a control measure has great limitations, and chemotherapy alone cannot control spread of the disease and ultimately erradicate it, the hope of controlling leprosy lies in the need for an organized antileprosy campaign including requisite administrative machinery, availability of necessary personnel, arrangements for training of such personnel, health education regarding the disease, social and financial assistance to needy patients and dependents, and steps for rehabilitation of patients in need of such help.

The other direction in which imbalance appears obvious is with respect to legal measures. The Committee on Epidemiology and Control of the VIIth International Congress of Leprology, Tokyo (1958) expressed the following opinion regarding "Legal Measures" in leprosy:

> "Legal restrictions on patients have limited value in the control of leprosy. They drive them into hiding and can be effectively applied only to a few. Indiscriminate, compulsory segregation is an anachronism and should be abolished"

The VIIIth Congress (1963) made recommendation on legal measures similar to those of the Tokyo Congress, as follows:

> "Leprosy must be classified among other transmissible diseases, and special legislation directed to the disease should be abolished".

Health education in leprosy

No leprosy control programme is complete without the health education component. Health education, therefore, forms an integral part of the leprosy services. Health education may be defined as the process which leads to the better understanding of health problems and realistic action to solve them (Pearson 1986).

The WHO Expert Committee on Health Education of the Public (WHO 1954) states that the aim of health education is to help people to achieve health by their own actions and efforts". Similarly, the National Health Planning Directorate of the Federal Ministry of Health summarizes the aims of health education thus, "To promote individual and community self-reliance in health matters". Health education concerns both the

individual and community and brings about the people's involvement and participation in matters affecting their health. Health education aims at influencing, changing or reinforcing positive health behaviour through knowledge, attitude and practice (KAP). It advocates voluntary change in behaviour resulting from education and personal motivation, not from coercion.

Principles of health education

Like other disciplines, health education is guided by its own principles. Ademuwagun (1985) outlines some of these principles and assumptions that undevlies the practice of health education. One of these principles and assumptions is that

> For changes in behaviour to be long lasting and practised regularly, they must be self-imposed; they must not be administratively ordered; the behaviour must be integrated into the individual's life patterning.

This principle is applicable in leprosy control among patients. Health education is concerned with (a) protection of health (self and others) against health hazards, (b) promotion of health, (c) maintenance of health, and (d) maximum utilization of available health services.

Its primary purposes is to help people establish patterns of living or life-style that will discourage ill-health and enhance positive health, thereby improve the people's quality of life. All four concerns above are equally applicable to leprosy health education as other diseases health education. How are all these carried out? The answer is in what Ademuwagun (1975) calls "mechanics of health education"

The mechanics of health education include:

(i) Knowledge of the target population in their total national environmental setting; a holisticecologic approach to problem diagnosis and solution.

(ii) Involvement of the target population to cooperate and participate in defining problems and obtaining solution.

(iii) Comprehensive planning of health activities in the context of pre-established objectives:

(iv) effective communication of health activities in the context of pre-established objectives.

(v) applied health behavioural research

These activities may be affected by the dynamic ecologic transactions of planner, health worker, health consumer, and environmental factors.

Why health education in leprosy?

The objective of leprosy health education should be "to evolve for the public at large, the patients and their families, a reasoned attitude towards leprosy which neither exaggerates the danger nor minimizes it" (Report of the Technical Committee on Educational and Social Aspects, 1963). Specifically, the basic aims of health education activities are to promote acceptance of the programme, dispel the social stigma of leprosy and seek the participation of the community in facilitating self-reporting by patients. (WHO Expert Committee on Leprosy. Techn. Report Series 768, WHO, Geneva 1988).

Health Education of the Patient

Health education, early detection and adequate chemotherapy are the key words in the prevention of disabilities in leprosy. The most important case finding method is voluntary reporting. It is health education that leads to voluntary reporting.

The prejudice against leprosy is deep-rooted, and is associated with the idea that it is incurable, very

infectious, and leads invariably to mutilations (WHO 1960 Second Report). The objective of health education in leprosy, therefore, should be (a) to convince patients and the public of the curability of the disease in the early stages, especially before deformities have developed, and (b) to demonstrate to society that it will not suffer if it takes up a more liberal attitude to leprosy patients and that the reabsorption of the latter into the community, even if they have deformities, is necessary on the ground of common humanity, and in the interests of the more effective prosecution of the campaign (WHO 1960 Second report).

Health education of the patient is divided into two parts. First every leprosy patient should know that leprosy is caused by a germ and that it is curable. Secondly he must be convinced that treatment has to be taken regularly for a long period, perhaps several years, and that his contacts should be repeatedly examined. The second part is on prevention of disabilities. The advantages of early reporting, diagnosis and treatment is the prevention of disabilities. Patients with disabilities should be taught exercises for stiff hands, and methods for

lifting hot cooking pots safely by using gloves or rags. Also instructions should be given on the importance of wearing shoes made specifically for leprosy patients, of daily examination of hands and feet, of reporting injuries or eye abnormalities early, and of taking drugs and attending clinics regularly.

Health education of the public

The public must be made aware of the causes, early symptoms, and treatment of the disease as well as the control measures. Health education should reach every section of the community particularly students from the primary school to the university level, so that the new generation will be better prepared to throw off the stigma attached to the disease. Health education should impress on every person that he should seek medical advice as soon as suspicious lesions or dark purple patches appear.

Methods of health education

These health education can be done by lectures, articles in newspapers, talks on radio and television, posters, pamphlets, booklets, film strips, and other visual aids. The particular method of choice depends on the audience in mind, the objectives and the educational materials available. While the mass media

are good in creating awareness of a problem or a particular situation, they are not an end in themselves Face-to-face contact with the people complements the mass media message and generates discussions on the solution of the problem through a two-way communication.

In summary, the literature review has looked at leprosy from the global perspective, the epidemiology, the traditional methods of leprosy control, the various attempts at leprosy control in Nigeria and the important role of health education in leprosy control programmes.

CHAPTER THREE

STUDY OBJECTIVES AND METHODOLOGY

This study was an operational research designed to obtain information on the operation of leprosy services in five leprosy institutions in Nigeria.

Broad Objective:

To determine the major operational problems affecting leprosy control services in Nigeria and to recommend ways of solving these problems so that leprosy control programmes may be made more efficient and effective.

Specific Objectives:

1. To identify the facilities and services available in leprosy control institutions;
2. To determine the adequacy or otherwise of staffing in the leprosy control programmes and institutions;
3. To determine the attitude of leprosy workers towards leprosy and the patients;
4. To determine the logistic and allied problems in the operation of leprosy services; and
5. To suggest strategies for strengthening and optimizing leprosy control programmes in Nigeria.

Protocol

The study was carried out in five stages as follows:

Stage I: Situational Analysis - Collection of Background Information on the Current Leprosy Situation in Nigeria

Information on the above was sought from the State Ministries of Health in the 21 States of the Federation and the Statistics Division of the Federal Ministry of Health, Lagos. Although not all states ministries responded to the questionnaire sent to them, the response rate was high enough to facilitate an unbiased selection of study areas. (Appendix I)

The States that responded were grouped into zones, according to the primary health care zones, thus:-

A Zone: Akwa Ibom, Benue, Cross River, Imo and Rivers States

B Zone: Bendel, Lagos, Ogun, Ondo and Oyo States

C Zone: Kwara, Kaduna, Sokoto States

D Zone: Borno, Gongola, Plateau States (Appendix I)

The preliminary information sought from these States Ministries of Health were as follows:-

(a) Number of leprosy hospitals, settlements or leprosaria in the State;

(b) Number of institutionalized leprosy patients and out-patients.

(c) Total number of doctors and number in each leprosy hospital or settlement as at December, 1987.

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(b) Number of institutionalized leprosy patients and out-patients.

(c) Total number of doctors and number in each leprosy hospital or settlement as at December, 1987.

(d) Number of nurses and other health professionals in the hospital or settlement for total leprosy care.

(e) Types of services rendered - clinical, rehabilitative, physiotherapy, (Appendix I).

Stage II: Selection of Study Centres and Preliminary contact with them

Criteria for selection of the hospitals: Based on the information derived from the various States Ministries of Health that responded from each zone, the following criteria were set up for selecting the hospitals for study:

1. There must be in-patient and out-patient services
2. At least one of the following services must be carried out at the institution:
   (a) the control of early cases
   (b) the rehabilitation of the partially disabled,
   (c) the care and rehabilitation of the totally disabled.

Sampling Method:

The names of the leprosy hospitals in the States that responded in each zone (p. 65) were written on a piece of paper, folded, and put in a basket and shaken. Then with eyes closed, one hospital was picked from each zone by a simple random sampling, and the results were as follows:-

The Q.I.C. Leprosy Hospital, Ekpene Obom in Akwa Ibom State was picked from the A Zone;

the Specialist Hospital Ossiomo, Bendel State was picked in the B Zone; the Leprosy Control and Research Centre, Zaria, in Kaduna State came from the C Zone; and the State Leprosy Hospital, Garkida, Gongola State was picked from the D Zone.

The fifth institution, Akure Segregation Village, in Ondo State was deliberately chosen from the B Zone because it is not a hospital but a segregation village, and so the author wanted to know how leprosy services are carried out there too.

Preliminary contacts were made with the Directors of each leprosy institution selected to inform them of the intention to carry out this study at their centres.

Stage III: Study of the Leprosy Institutions: Data Collection Tools:

First, information was obtained from the Federal Ministry of Health, Lagos, on the Nigerian Government Policy on Leprosy Control. This served partly as the basis of what to look for in the study institutions.

Questionnaires:

Next, questionnaires were designed as follows for the study of the leprosy institutions:

(i) Form A: A General information questionnaire designed to gather information on the institution. This was to be filled by the Medical Director of the hospital or

the hospital administrator. (Appendix 2).

(11) Form B: A questionnaire to be filled by the Medical Director of the Hospital, was designed to gather information on the operation of leprosy services at the hospital (Appendix 3).

(111) Form C: Staff questionnaire, designed to assess the attitude of leprosy workers toward leprosy patients and the programme. This questionnaire was to be filled by all those directly involved in the delivery of health care to the leprosy patients. They doctors, nurses, leprosy supervisors, physiotherapists, laboratory technicians and health educators/social workers. For this the total population was surveyed as their total number was less than one hundred in the five centres.

For the attitude measurement the Likert scale was used. The Likert scale consists of positive and negative statements about leprosy, and for each statement there are five responses - strongly agree, agree, undecided, disagree, and strongly disagree. The scoring for favourable statements ranges from 5 for strongly agree to 1 for strongly disagree; and for unfavourable statements the scoring is reversed, and ranges from 1 for

NIGERIA: THE FOUR HEALTH ZONES & THE STUDY SITES.

Fig 2 Nigeria: showing the four Health Zones and the study sites

strongly agree, to 5 for strogly disagree. Agreement with a favourable statement would imply a positive attitude toward leprosy or leprosy patients; agreement with an unfavourable statement would imply a negative attitude.

As there were ten statements, the minimum score for each respondent would be 10 (i.e 1 x 10), and the maximum would be 50 (i.e 5 x 10). The author chose a score of 35 which is a little above the midway point toward the positive end of the scale, as a cut off point for positive attitude. Thus, the nearer the score is to 50, the more positive the attitude. (Appendix 4).

2. Discussion and interviews

The researcher held discussions and interviews with the chief executives of each leprosy institution to explain certain issues related to the questionnaire and some information not covered in the questionnaire for example, the use or non-use of multidrug therapy the training of leprosy staff and the history of the leprosy institutions.

3. Observations

The researcher in his visits to the leprosy institutions noted many things about the institution and the welfare of the patients, and

asked questions for their clarification.

Stage IV: A follow-up questionnaire After the information had been collected on Forms A and B, above, certain responses raised issues which needed further explanation. A follow-up questionnaire to this effect was therefore sent to each leprosy institution for explanation (Appendix 5).

Stage V: Analysis of information gathered and writing of report

Scope and Limitations

This study was conducted in five of the 21 States of the Federation, one State from each of the four primary health care zones into which the country is divided, except for the B zone from which two leprosy institutions were studied. To study all 21 States would be too expensive and time consuming for an individual researcher considering the geographical coverage, time , ailor and resources at his disposal. Although this is a descriptive study, the findings would, however, hold true for most States of the Federation, with slight differences depending on the resources available to each State.

Since many leprosy meetings are held on zonal basis, it is believed that the State selected is a fair representation of the States in that zone, and also the findinge thereof.

Setting: A brief history of the leprosy institutions under study

1. The QIC Leprosy Hospital, Ekpene Obom, Etinan Local Government Area, Akwa Ibom State, is about 30 minutes drive from Uyo, the State Capital. Founded in the early 1930s by the Qua Ibce Church missionaries, the hospital served as a referral hospital for the former Cross River State until September 1987, when Akwa Ibom State was created and the management was taken over by Akwa Ibom State Government. The site which covers many acres of land was donated by a Chief of the area and includes farmland for the patients. Since its foundation, the hospital was managed by missionary doctors until 1988. At the time of this study, there were 1875 leprosy patients State-wide receiving treatment, with 116 in-patients in the hospital. The Leprosy Mission International (TLM) is the chief donor here.

2. Ossiomo Specialist Hospital, Bendel State, was founded in 1933 by the Catholic Mission when the Oba of Benin donated the present site of Ossiomo Settlement. Ossiomo is about 50km from Benin City, on the Benin-Asaba Road. Formerly run jointly by the Benin Native Administration and the Catholic Mission, the hospital is now managed by the Bendel State Health Management Board. The Settlement covers several hectares of land 8 of which are under agriculture. At the time of this study, there were 2,600 leprosy patients under treatment in the State of whom 480 were in Ossiomo with 40 in the hospital. The German Leprosy Relief Association (GLRA), a member of the International Federation of Anti-Leprosy Association (ILEP) is the chief donor here.

3. Zaria Leprosy Control and Training Centre, Zaria, Kaduna State. The hospitnl started 55 years ago as the leprosy segregation village for Zaria City, along old Zaria-Kaduna Road, near Sayo Village, 6km from the town. The land was donated by the Emir in 1925. The segregation village was run by the Church Missionaries until 1965, when it came

under the Kaduna State Ministry of Health. Today the Centre is a Referral Hospital for the Kaduna State Leprosy Control (KDLC) and a training centre for the National Tuberculosis and Leprosy Control. At the time of the visit to the Hospital, there were about 1,3000 patients under treatment, with about 30 in-patients. The chief donor here is the Netherlands Leprosy Relief Association (NSL).

4. State Leprosy Hospital, Garkida, Gongola State. Started in 1928 by the Church of the Brethren Mission, the Garkida Leprosy Colony opened its doors for patients in 1929. In its early years the colony was jointly supported by many organizations and agencies - the Adamawa Native Administration donated the land, the British Empire Leprosy Relief Association donated for the buildings, the American Mission for lepers donated money annually for permanent buildings, medicine, school and industrial activities, and the Native Administrations in the surrounding provinces donated one shilling per week per case for food, while the Church of the Brethren Mission (USA) furnished the staff and acted as a unifying agent for all those named above. The Colony covers several hectres of

land for farming and housing. The Congola State Covernment took over the Colony from the Mission in 1976. At the time of the study there were 11,168 leprosy patients statewide under treatment, with 80 in patients. The chief donor here is the Netherlands Leprosy Relief Association (NSL).

CHAPTER FOUR

FINDINGS

Introduction

The findings are presented in four sections, thus:

Section 1: A description of the human resources available.

Section 2: A description of the infrastructure and services available.

Section 3: A description of the logistics of delivery of the services.

Section 4: Attitude of workers

SECTION I: THE HUMAN RESOURCES AVAILABLE

Doctors:

Table 3 shows the category and number of staff available in each leprosy institution. As can be observed from the table, each leprosy institution has at least one doctor, except Akure, which has none, and each of the doctors is a leprologist or has had sufficient training and experience in the field of leprosy to function efficiently. The doctor's job ranges from consultation and management of leprosy patients to general health care of the patients, staff

and patients from the community. As the Chief Executive of the hospital, he is also engaged in administration even in hospitals where there is an administrative officer. Of the six doctors in the four leprosy hospitals, 3 are expatriates, an indication that government needs to do something more to get indegenous doctors to be interested in leprosy.

Table 3 - Patient Population and Medical Staff Distribution in the Study at time of survey.

Leprosy Institution	Patient Pop	Doctors	Nurses	Physiotherapists	Leprosy Supervisors	Lab. Tech	Social Workers	Health educators	Prosthetists
Ekpene Obom	1876	3	21	2	5	2	1	1	1
Oshogbo	2500	1	20	2	21	2	1	-	2
Zaria	300	1	9	2	17	2	-	-	2
Garkida	11,163	1	3	-	21	2	-	-	1
Akure	214	-	1	3	2	-	-	-	-

NURSES

As shown in Table 3 only two institutions have sufficient nurses to run three shifts which is a normal routine in any hospital. they are Ekpene Obom and Ossiomo. The others are available only in the morning. Apart from bed-side nursing, the nurses perform specialised functions like theatre nursing and ophthalmic nursing, in the institutions where such facilities are available (Ekpene Obom, Ossiomo, Zaria and Gorkida). They also give psychological care and health education in addition to defaulters-tracing and home visiting.

PHYSIOTHERAPISTS

These are medical specialists who help the leprosy patient to recover the use of his hands or feet, or to mobilize any part of the body that has been immobilized, through exercise and the use of some godgets. Of the nine physiotherapists in four leprosy institutions, only five are Nigerians, and three of these five are only filling in for physiotherapists. In institutions where there are no trained physiotherapists, other categories of health workers perform these function though not trained for the job. This is another indication of the need to train more indigenous physiotherapists, otherwise, when the expatriate staff withdraw, the work

could virtually come to a standstill.

Table 4 Distribution of Trained Leprosy Supervisors

State	Total number of Leprosy Supervisors	Name of Institution
Akwa Ibom	5	(...)
Bendel	21	...
Kaduna	17	...
Gongola	21	...
Ondo	1[illegible]	...

- Data not available.

Leprosy Supervisors

These are trained to detect and treat leprosy in their field work. They act as the link between the out-patients and the hospital administration. They constitute a special unit called leprosy control. They dispense drugs, supervise other field workers, refer cases to the hospital and make reports to the hospital administration. Table 4 shows total number of leprosy supervisors and where trained in each leprosy institution.

Laboratory Technicians

These are trained staff who can take skin snips and blood smears and confirm cases of leprosy by examination under the microscope. They also classify cases as Paucibacillary or multibacillary, depending on their microscopic observation. As Table 3 shows all but one of the leprosy institutions studied have a laboratory facility and two laboratory technicians.

Social Workers

Social workers see to the welfare of the in-patients, their feeding, employment and well-being in the hospital. According to Table 3, there are only two social workers, that is, in Osolemo and Ekpene Obom, so designated. Other centres may have persons who serve in this capacity, but are not so designated.

Health Educators

Although health education should be the concern of every leprosy worker, professional health educators are needed because of the magnitude of health education activities that must accompany leprosy control services. Health education is needed for the patient, his family, and the community. The health educators should lead in all health education activities including public enlightenment campaigns. This page 70 shows that there is only

one health educator so designated in only one of the five institutions studied.

Occupational therapists

Although there was no category of staff so designated in any of the institutions, some workers were engaged in teaching the patients some crafts out of which they could make a living. The designation of this unit varied from institution to institution. In Oshomo it is called Rehabilitation unit, and a Reverend Sister was in-charge. In the days before the declining economy of 1983, they used to make bricks for building, bake bread and sew cloth. Now they mostly make baskets, cane chairs, garri strainers, knit caps from wool, prosthesis, and native pomade from palm kernels. In Ekpene Obom on the day the author visited, a representative of Better Life for Rural Women demonstrated to both patients and staff how to make soap from soda and palm oil.

Adequacy in Number of Staff

A simple rating of staff strength in each institution was carried out - adequate or inadequate, in terms of numbers. Adequate or inadequate was relative to individual institution and there was no standard to judge adequacy or inadequacy. Thus, whereas Ekpene Obom said it was understaffed, Oshomo, [illegible] and [illegible] said their staffing was adequate, while [illegible] said they were overstaffed.

SECTION 2: INFRASTRUCTURE AND SERVICES AVAILABLE

1. Infrastructure:

Infrastructure in this context refers to access roads, buildings, electricity, water supply and other supportive facilities like diagnostic facilities, vehicles and means of communication.

Leprosy control started in Nigeria, like in many other developing countries, as a vertical programme. Leprosy settlements, leprosaria or leprosy hospitals were built in different parts of the country for purposes of leprosy control by mission agencies and voluntary organizations. As the country progressed in its political, economic and social development, states were created and these leprosy institutions were taken over by the state governments and run by the ministry of Health on behalf of the government. So the infrastructure was already there in terms of roads building, materials and equipment. One of the additions to the infrastructural improvement has been the opening of clinics and treatment centres in rural areas for the convenience of the community patients, that is, patients who live in their homes but come to clinic on clinic days for treatment. This improvement has expanded the base for

the control programme. Except Akure Segregation Village, all other institutions studied had an operating theatre, a laboratory for diagnosis, and a leprosy control unit. In addition to these, Ekpene Obom had a power generating plant which supplied electricity for some hours of the day. Ossiomo, Zaria and Akure were connected to the city mains, but each had a standby generating plant. Gorkida depends on a rural electrification scheme which supplied power only for some hours of the day. Each institution had a pipe-borne water supply. The access roads to these institutions were quite reasonable especially during the dry season.

2. Services Available at the Leprosy Hospital

Table 5 shows the services available at each leprosy hospital. As the Table indicates, all centres offer most of the services shown except Zaria which has no rehabilitation facilities, and Akure where there is no prosthesis and diagnostic services.

Table 5. Services available at the Leprosy Hospitals Under Study

ROSY TITUTIONS	Chemotherapy		Case Management	Physiotherapy	General H.Care	Lab. Services	Health Education	Rehabilitation	Prosthesis
	Mono-therapy	MDT							
pene om	A	-	A	A	A	A	A	A	A
aimo	A	A	A	A	A	A	A	A	A
ria	A	A	A	A	A	A	A	-	A
rkida	A	-	A	A	A	A	A	A	A
kurc	A	-	A	A	A	-	A	A	-

A = available
- = not available

Chemotherapy

(a) Monotherapy: Each centre treats its patients with dapsonemonotherapy which has been long in use since Dr. Lowe first used it orally in Nigeria in 1947. In spite of the resistance of some strains of Mycobacterium leprae to dapsone, some leprosy institutions still continue to use it alone because of lack of trained personnel for supervision or lack of funds with which to purchase other drugs.

(b) Multidrug therapy (MDT): Multidrug therapy was recommended for use by WHO in 1982, and was introduced in Osogbo and Zaria in 1985. Table 7 shows the coverage of MDT in the two States where it has been introduced. All the institutions studied have fresh supply of drugs regularly except on occasions when drugs are not available and patients have to buy them. When drugs are available they are given free of charge to the patients.

Table 6. Coverage of MDT in Bendel State (Ossiomo) and Kaduna State (Zaria)

State	Year MDT was introduced	No. of Pat. as at Dec. '89	MDT coverage
Akwa Ibom	-	1876	-
Bendel	1985	2600	32 out of 58 clinics
Kaduna	1985	1300	11 out of 13 LGAS
Gongola	-	11,168	-
Ondo	-	814	-

Source: Reports from the Leprosy Institutions.

Case Management: Every institution studied offers this service to any leprosy patient who is diagnosed as having leprosy. Part of the management is to register the patient and ensure continuous supply of drugs for him and also ensure that he takes the drugs.

Physiotherapy: Although this service requires the skill of trained personnel, not all institutions offering this service have trained physiotherapists. Such institutions are therefore limited in their scope of physiotherapy service to the patients.

General Health Care: This is a service that all the institutions studied indicated as offering it. Leprosy patients suffer from sicknesses other than leprosy. This service is therefore essential to meet the needs of such patients.

Laboratory services: Four of the five institutions studied have laboratory facilities for the diagnosis and confirmation of leprosy. In addition, Ekpene Obom has an X-ray unit, though the machine was out of order at the time of this study.

Health education class: Health education is a major service in any leprosy control programme, as it concerns not only the patients and their families, but also the

community and the leprosy workers themselves.

Although all five leprosy institution studied offer this service, it was apparent only in Ekpene Obom where there is a chief educational therapist and a health educator. In three of the five centres studied, health education class was held on a weekly basis with the patients, while in the remaining two centres, it was on a monthly basis. Health education of the patient enables him to guard against injury or further disability. Education of the public allays fears about leprosy and leads to voluntary self-reporting on suspecting any unusual skin rash; and of the workers themselves to assist them in overcoming any prejudice they themselves may have. The attitude of the workers is important to the success of a control programme.

Rehabilitation: Rehabilitation in leprosy has two main objectives:

(a) prevention of further deterioration in the patient's physical, social and economic status; and

(b) restoration of the patient's level of economic independence and social status where necessary.

Almost all the institutions studied offer this service in the form of vocational training or retraining, in which the self-severely disabled patients learn various crafts like basket and mat weaving, cane chair

making, tailoring, making strainers from rondo, carving from wood, and prosthesis (see Figure 9 - 10) Apart from the economic importance, vocational rehabilitation also has a physiotherapeutic effect on the hands and fingers. Rehabilitation is highly commendable and should be encouraged.

Prosthesis: This service is concerned with making artificial substitutes for missing parts for example, limbs. It also makes special shoes for leprosy patients, crutches and other gadgets for walking. Not all leprosy institutions studied offer this service, because these spare parts can be obtained from other centres that make them.

SECTION 3: LOGISTICS OF DELIVERY OF SERVICES

Mullac (1967) lists the basic components of leprosy field logistics as:

- organisation and communication
- supervision and coordination
- manpower and case-coverage
- case-finding
- surveys

Logistics have to do with supply of antileprosy drugs to peripheral treatment centres to ensure a complete and uninterrupted course of the drugs for all cases of

patients; and the storage of those drugs. For this to be possible, personnel, transportation and communication must be available. This section shows what is available and how it is used in the delivery of service.

Personnel: The personnel for the logistics of field work are the doctors, the leprosy supervisors, the laboratory technicians and other lower cadre leprosy field assistants who are employed to distribute drugs. Effective delivery of services depends partly on the efficient supervision by the tope cadre personnel - the doctors and leprosy supervisors. The availability of these personnel in each institution studied, has already been shown in Table 1.

Case-finding: Care is taken to sort out the way patients are found, i.e. whether they report on their own - voluntarily, or are detected through contact-tracing, school surveys, upon notification, or through other sources.

Case-management: This component of the Leprosy field Logistics has to do with the epidemiology and rates, for example, the usual sex distribution and the various age groups, the number of yearly new cases, the male

to female ratio, the percentage of "open" and "closed" cases, the relapse rate, lepromatous type and disability rate. Now all these and more have to be worked out by skilled manpower. Although all the institutions studied have a records section which handles the statistics part of the programme, the statistics are limited to number of cases, type (multibacillary or paucibacillary), number on MDT, sex distribution and age groups.

Surveys: Surveys enable rates to be calculated. The various kinds of surveys are contact survey, school survey and mass survey. Surveys are expensive and time consuming to carry out. In the study, it was noticed that only one institution (Zaria) indicated survey as one of her methods of case-finding.

Supervision: In view of the complexity of implementing MDT and the necessity of applying it with acceptable regularity, supervision is an essential component of such therapy service. Even in centres where MDT is not introduced, supervision can still be a problem. Adequate manpower and transport facilities are necessary for effective supervision. Supervision is the function of trained personnel, the leprosy

supervisors and the medical officer in-charge of the centre. In many of the centres studied the trained staff are stationed at the centre and they go out on a daily or weekly basis to supervise the field workers and the distribution of drugs. Effective supervision is handicapped by lack of transportation, inadequate personnel and other logistics like fuel shortage, storage facilities, besides the topography of the area.

Table 7 shows that four of the five states studied have a leprosy referral hospital each. Ondo has a Segregation Village with no hospital facilities. The emphasis now is on out-patient treatment and not on hospital care, hence the large number of out-lying clinics scattered over each state for greater coverage.

Table 7. Number of Leprosy hspitals, Leprosarium, and clinics in the States of the Study Institutions

State	No. of Leprosy Hospitals	No. of Segregegrega-tion Villages /Leprosarium	No. of Clinics/ Treatment Centres
Akwa Ibom	1	-	51
Bendel	1	-	54
Kaduna	1	-	102
Gongola	1	-	242
Ondo	-	1	47

Number of clinics under the supervision of the Leprosy Hospital

Table 7 shows the number of clinics in the State which are supervised by the Referral Hospital/ Leprosarium. The large number of clinics in each State is for the convenience of the patient, in keeping with the characteristics of primary health care, of bringing health care near to the people where they live and work. However the aim of the leprosy centres

is to reduce the number of clinics, as such a reduction is indicative of how effective control measures have been.

Table 8 : Estimated Population of state, number of leprosy Patients and Clinics in Study area December 1980

States	Estimated Population 1987	No. of Lepr. patients	No. of clinics
Akwa Ibom	4,892,000	1876	51
Bendel	4,752,000	2,600	54
Kaduna	3,192,000	1,300	102
Gongola	5,031,000	11,168	212
Ondo	5,271,000	814	47

Source: Population: from Federal Office of Statistics, Lagos.

Patients and Clinics: Data from the leprosy hospitals under study.

Means of Transport Available

Table 9 shows the means of transport available for mobility in the leprosy services. Each leprosy hospital has at least one car for field work and supervision, and some motor cycles, except Garkida which has no motorcycle, the ones it had having been completely grounded. It is the only centre using a bicycle.

Table 9 Distribution of Means of Transport for Field Work/Supervision

	No. of Vehicle	No. of Motor-cycles	No. of Bicycles	Canoe	Remarks
Ekpene Obom	1	1	-	Not applicable	Inadequate
Ossiomo	1	5	-	Public ferry	Still need more
Zaria	1	10	-	Not applicable	Still need more
Garkida	1	-	1	Not applicable	Inadequate
Akure	1	1	-	Not applicable	Inadequate

Frequency of visit to outlying clinics

Table 10 shows how often the doctor in charge of the leprosy hospital visits the outlying clinics. This is quite apart from the visits the leprosy supervisor makes to the clinics according to his own schedule.

Table 10. Frequency of Doctor's visit to outlying clinics

	Weekly	Monthly	3 Monthly
Ekpene Obom		✓	
Ossiomo		✓	
Zaria		✓	
Garkida			✓
Akure		✓	

Frequency of holding clinics

Each unit of leprosy control team has its own schedule of holding clinics for the patients. For the field workers the frequency depends on several factors: availability of means of transport, availability of drugs and the distance of the clinic from the centre.

Table 11. Frequency of Holding Doctor's Clinics in the Hospitals

	Daily	Weekly	Monthly
Ekpene Obom		✓	
Ossiomo	✓		
Zaria		✓	
Gorkida		✓	
Akure			✓

How often a doctor conducted clinics for in-patients depended on his work load and the condition of cases admitted in the hospital.

Case-finding methods

Patients report to the leprosy hospitals under different circumstances. Some patients report volun-

Voluntarily, some are by referral, others are brought by relatives, still others are picked up through reports of some informants. Generally, the majority of cases in the leprosy hospitals come by referral of field workers especially the leprosy supervisors, or from infectious disease hospitals, health centres or general hospitals. In the Zaria Leprosy Control Referral and Training centre for example, 70% of the patients voluntarily report, 15% by referral, with notification, 10% through contact survey and 5% from skin clinics.

No data on such break-down were available from other institutions. The high voluntary mode of reporting in Zaria is indicative of public awareness through health education of the public.

It was also observed that only Zaria got patients through survey. Survey is an important case-finding method since many patients for fear of stigma, refuse to report voluntarily, nor are their relatives willing to bring them for the same reason. Health education and survey among school children and contacts should be stepped up in all institutions in order to get patients who otherwise cannot be met.

* 1980 Report on the leprosy control services in Kaduna State of Nigeria, NNI, Kaduna

Operational Problems

Problems arise in the day-to-day running of the leprosy services. These problems pose a threat to the programme. These problems can broadly be classified as Financial, Manpower, Transport, Drugs and Medical Supplies, Stationery, Food and Learning materials. Table 12 depicts the specific problems of each leprosy institution.

Table 12. Operational problems of the Leprosy Institutions

	Finan-cial	Man-power	Trans port	Drugs/ Med. Suppl.	Station ery	Food
Ekpene Obom	✓	✓	✓	✓	✓	✓
Caalomo	✓	-	✓	-	-	-
Zaria	✓	-	-	-	-	✓
Oarkida	✓	-	✓	✓	✓	-
Akure	✓	-	✓	-	-	-

Key: ✓ = Problem. - = No problem

1. Financial Problems

Many operational problems arise from lack of funds, and they include manpower, drugs, vehicles, food and medical supplies. This general shortage of funds necessitated investigation into the sources of funds.

Table 13 Sources of Funding

	Federal Govt. %	State Govt. %	LGC %	NGOs %	Others %	Total %
Ekpene Obom	0	50	-	45	5	100
Ossiomo	0	-	-	-	-	-
Zaria*	0	64	11	25	-	100
Gorkida	0	-	-	-	-	
Akure	0	-	-	-	-	

*Zaria: 1989 Report. Zaria Leprosy Referral Hospital and Kaduna State Field Programme.

- = No figures available.

As Table 13 shows, Federal Government meanwhile contributes nothing financially to the control programmes, but according to the new National TBL Control programme, Federal Government, among her responsibilities, will

make provision of financial and technical support for procurement of drugs, laboratory equipment and reagents, and other essential materials for the programme. In Ossiomo, although the bulk of operational costs is borne by the State Government, it is difficult to say exactly in quantitative terms how much it costs, since the support is given in both cash and kind. Also, a lot of the materials received, eg. drugs, dressings, vehicles, come from Non-governmental agencies (like CLRA) and these cannot accurately be quantified in terms of money. In Garkida, the situation is similar to that of Ossiomo. The State government is responsible for the financing of the Leprosy Services, but when there are shortfalls, the Netherlands Leprosy Relief Association (NSL) assists it, and the amount of assistance varies from year to year. Other sources of funding are the Leprosy Mission and the Local Rotary Club. It must be noted that in all these institutions, both those that show funding in quantitative terms in the Table and those that do not, the amount of funding from the State Governments, Local Government, NGOs and others, varies from year to year.

2. Manpower: While many centres seem to be adequately staffed, Ekpeno Cbem is seriously under-staffed in the area of field work. This is the area where skilled,

high level manpower, leprosy supervisors are needed. The lack of this level of staff impedes delivery of quality service and makes the few available personnel to overwork themselves. This can have an adverse effect - it can lead to inefficiency.

3. Drugs and Medical Supplies: Except Ossiomo whose drugs are supplied by overseas donors, and Akure and Zaria, other centres have problems getting regular supply of drugs. The reason is financial. Again, apart from the anti-leprosy drugs, the supply of non-leprosy drugs are inadequate in some of the leprosy centres. Such drugs include oral/parenteral drugs, skin preparations, anti-malarials, antibiotics and hematinics. In addition, medical supplies like thermometers, sphygmomanometers are grossly inadequate in some centres.

4. Food Supply: In the centres where government is responsible for feeding the in-patients, food supply becomes a problem as the cost of living soars higher and higher everyday. This results in poor quality of food and service and dissatisfaction on the part of the patients. The food contractors hired by the government supply food only when money is available, so in some instances patients can go without food for some

days. This trend adversely affects most of the patients since they are penniless, and the resulting under-nutrition weakens their resistance to common infections.

Admissions and Discharges

An effective leprosy control programme should have admissions and discharge yearly. Table 15 shows the admissions and discharges in Ekpene Obom over a ten year period 1980 - 89. The number that actually go back to their communities is dismally low, suggesting that if the rest are staying back, it would become an economic and social burden to the institution.

Table 14 Admissions and Discharges, Leprosy Hospital, Ekpene-Obom, 1980 - 89

Year	'80	'81	'82	'83	'84	'85	'86	'87	'88	89'
No. of patients admitted	224	344	315	218	264	188	193	236	212	136
No. discharged	192	262	205	202	172	187	199	184	200	190
No. that actually go back home	9	11	12	11	21	13	14	18	57	23

Similarly, Table 16 shows the admission and discharge pattern for Ossiomo. The ell time high "mass discharg" of 1466 in 1989 was attributed to MDT which was introduced in the institution in 1985. No data was available of patients who actually went back home.

Table 15. Admissions and Discharges, Specialist Hospital Ossiomo, 1980 - 89

Year	80	81	82	83	84	85	86	87	88	89
No. of patients admitted	235	207	227	165	173	198	181	558	100	175
No. dischorged	225	139	95	36	54	219	81	254	287	1466
No. that actually go back home	-	-	-	-	-	-	-	-	-	-

No data were available for other institutions.

System of reporting leprosy incidence to Federal Government

This varies with the institutions studied. Whereas three institutions Ekpene Obom, Ossiomo and Akure make monthly reports to the State Government, Garkida makes half-yearly, while Zaria makes yearly report to the State Government. Similarly, whereas the three institutions

named above make quarterly reports to the Federal Government, the latter two make half-yearly and yearly reports, respectively, to the Federal Government.

Ways of meeting patients' needs

To the question, how does the Institution meet the following needs of the patients; financial, social, psychological, and spiritual? Various responses were received for each of the variables. For purposes of clarity, the responses are presented here centre by centre.

A. Ekoene Obom:

1. Financial: Government subvention and consistent voluntary donations from overseas and public spirited Nigerians.
2. Social: No formal social programmes. There is a Club House for the patients donated by Dr. Peter M. Davis. Patients have their own social contacts in and around the compound.
3. Psychological: Counselling and job training
4. Spiritual: Regular prayers, services and Bible classes, etc. in the Chapel.

B. Calomo

1. Financial: Patients meet their own financial needs.
2. Social: Free food and clothing for the badly

disabled.

3. Psychological: Not indicated

4. Spiritual: The churches around

C. Zaria

1. Financial: Pocket/transport money provided for discharged patients to travel home.

2. Social: Home visits with health education talks.

3. Psychological: Home visits

4. Spiritual: There is a church and a mosque.

D. Sarkida

1. Financial: Transport money is given to discharged patients when going back home.

2. Social: Patients are accepted by the society, and there is interaction with the staff and other health workers. Patients feel comfortable in the hospital.

3. Psychological: Patients accept that they have leprosy. Because of financial problems, they prefer staying in or near the hospital to get regular treatment.

4. Spiritual: There is a church and a mosque in the hospital premises. Patients hold church services freely.

E. Akure

1. Financial: State Government supports them financially every month.
2. Social: No specific way given
3. Psychological: Patients are reassured
4. Spiritual: Different churches come to pray and preach for the patients.

SECTION 4: ATTITUDE OF WORKERS

There were ten (10) attitudinal statements, five positive and five negative. Agreement with the positive statements that imply love or acceptance, implied positive feelings; agreement with a negative statement that imply rejection, would imply negative feelings. The Likert Scale of measurement was used. The number of respondents which was 75, included people who were directly involved in health care delivery to the leprosy patients (i.e. doctors, nurses, physiotherapists, leprosy supervisors, social workers, health educators and laboratory technicians).

The minimum score possible in the pool was ten and the maximum score possible was 50. The actual scores ranged from 23 to 48, and the mean score was 39.21. A score of 35 was thus a little above the mid-

way point toward the positive end of the scale, which implied that someone had a mildly positive attitude towards leprosy patients and the programme. Eighty per cent of respondents scored between 35 and 50, indicating that most leprosy workers had a positive attitude towards leprosy patients. Table 16 shows the statement number and the total number of responses under each choice.

Table 16 Statement number and number of responses under each choice

State-ment No.	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	% age that express positive attitude
1	28	25	5	11	6	70.1
2	3	5	-	22	45	89.0
3	3	5	10	31	25	74.6
4	2	2	-	22	46	96.6
5	19	22	3	19	12	54.6
6	24	36	2	8	5	80.0
7	16	40	8	7	3	74.6
8	39	22	2	6	6	81.3
9	16	7	2	18	32	66.6
10	3	4	1	22	45	89.0

n = 75.

Statement 1: The stigma on leprosy patients of being 'unclean' is based on prejudice and not on founded facts. A total of 53 respondents (70.6%) expressed agreement with this statement and only 17 or 22.6% expressed disagreement.

Statement 2: Health care workers should chat with the leprosy patients only when they are performing their official duty.

Disagreement with this statement shows a positive attitude to leprosy patients. 67 out of 75 or 89% expressed this attitude.

Statement 3: A leprosy staff should quickly switch to another job that offers him/her the same wages whenever an opportunity occurs.

While agreement with this statement shows a negative attitude to leprosy work, disagreement shows a positive attitude. 56 respondents (74.6%) expressed disagreement, 9 (12%) expressed agreement, and 10 (13.3%) were undecided.

Statement 4: Children of leprosy patients should not go to the same school with other children whose parents are not leprosy patients. 68 (96.6%) disagreed with this statement - indicating a positive attitude to leprosy patients.

Statement 5: Higher wages for leprosy staff would make them perform all the activities expected of them toward leprosy patients. A total of 41 respondents (or 54.6%) agreed with the statements; 31 (or 41.3%) disagreed with the statement.

Statement 6: Taking care of leprosy patients is a satisfying job. Eighty percent said it was and only 17% held contrary views.

Statement 7: Health workers should not mindhiring discharged leprosy patients as house help. Fifty six workers (74.6%) agreed with this statement, ten (13%) dissented, and 8 (10.6%) were neutral.

Statement 8: The care of leprosy patients should be integrated with the primary health care services. Sixty one respondents (81.3%) were infavour of this statement, only 12 (16%) did not like a change in the status quo.

Statement 9: All leprosy patients should ccmpulsorily be isolated so as not to spread the disease. Fifty respondents (66.6%) disagreed with the statement, indicating a positive attitude, while 23 (30.6%) agreed with the statement indicating a negative attitude.

~~Statement 10:~~ Leprosy workers take up this job because they have no alternative. Sixty-seven respondents (or 89.3%) disagreed with this statement, which indicated a positive attitude to leprosy control programme.

Donor Agencies: An interesting finding was the support of Non-Government Organizations to leprosy control Programmes in the country. The donor agencies are here shown in Table 17, and discussed on page 151.

Table 17: Donor Agencies and the States they Support

Donor Agencies	States they Support
1. The Netherlands Leprosy Relief Association (NSL)	Bauchi, Benue, Borno, Gongola, Kaduna, Kano, Katsina and Plateau.
2. German Leprosy Relief Association (GLRA)	Anambra, Bendel, Cross River, Imo, Ogun, Ondo and River States
3. British Leprosy Relif Association (BLRA)	Niger, Sokoto, and Federal Capital Territory (FCT)
4. Leprosy Mission International	Akwa Ibom and Kwara States
5. Damien Foundation	Oyo State
6. Emmaus Swiss Leprosy Works of Switzerland	Lagos State
7. The Sasakawa Memorial Health Foundation has reportedly indicated interest to help the Federal Government in drugs and logistic supplies	

Source: The Guardian, Wednesday 27th June, 1990 p. 5.

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Source: The Guardian, Wednesday 27th Jun., 1990

FIG. 2 REHABILITATION - PATIENT MAKING A CANE STRAINER AT OSSTOMO

FIG. 4. PATIENT WEAVING A BASKET AT OSSIOMO

FIG. 5. A PATIENT CARVING A WOODEN TRAY AT O.STUMO

FIG. 6. PROSTHESIS CENTRE, OSSIOMO

FIG. 7. NATIVE POMADE FROM PALM KERNELS OSSIOMO

FIG. 8. KADUNA STATE LEPROSY CONTROL (KDLC) TEAM POSE FOR A GROUP PHOTOGRAPH AFTER A QUARTERLY MEETING IN MAY, 1990; ZARIA

FIG. 9. BREAKING GROUNDNUTS FROM THE SHELLS, CAMEROONS.

FIG. 10. KWALAMIA VILLAGE CLINIC, GARKIDA
ROLL CALL FOR DISTRIBUTION OF DRUGS

CHAPTER FIVE

DISCUSSIONS

National Policy on Leprosy Control

It is necessary to begin this discussion with the National Policy on Leprosy Control because on its proper implementation, monitoring and evaluation depends the success of the programme. As noted earlier, the findings of the study revealed that the Federal Government did not contribute financially to Leprosy Control in any of the States studied. This would hold for all States of the Federation. This lack of financial contribution on the part of the Federal Government has led to insufficient funds in executing effective control programmes. But now, according to the National Policy on Leprosy Control, the Federal Government will make "provision for financial and technical support; for procurement of drugs, laboratory equipment and reagents and other essential materials for the programme. This is a welcome relief.

Furthermore, as Leprosy Control was State - based, the intensity of services rendered depended on the financial buoyancy of the State. In Leprosy Control, as in other Health Care, continuity of care matters. It is

believed that with the injection of national outlook into the programme, the programme will be regarded as a national goal and so services will be continuous.

The study also found that in Leprosy Control programme, in terms of personnel, there was no minimum laid down standards, e.g. Doctor/Patients ratio, or Nurse/Patient ratio, or Leprosy Supervisor/Patients ratio. Consequently, while some States can negotiate for two or three Doctors, for example, others have none at all. Though the present policy does not stipulate the proportion of personnel to patients, it is believed that Federal Government will give, according to the National Control Policy, "assistance with man-power development for the various States by training and retraining of personnel" for equitable distribution. In this connection, one function of the Non-Governmental Organisations (NGOs) must be mentioned here as it is complementary to the efforts of the Federal Government to improve Leprosy personnel. It is that they will "assist with recruitment of indegenous staff especially Doctors, as it is now difficult to get expatriates, and most Nigerian Doctors are not attracted because of poor salary and lack of incentive. They may be able to "top up" the

salaries of the Doctors as an inducement or incentive."

The State Governments are at the centre of Leprosy Control Programmes because they provide the necessary funds, employ the personnel and in some cases, provide the drugs. According to the National Policy, State Governments will continue to provide financial and material facilities, supervision and operational activities for the control programme.

The inclusion of Local Governments in the Leprosy Control programme is quite an innovation. As the study revealed, (Table 14 page 103) Local Governments of the past and present contributed peripherally to Leprosy Control Programmes in some States; in other States they contributed nothing at all. Whereas in the early years of Leprosy Control in this country, Local Governments played a secondary role, the present Local Governments, according to the new set-up will play a primary role. For example, whereas in the early 1930s, the surrounding Native Administrations supported the Oorzida Agricultural - Industrial Leprosy Colony by giving one shilling per week per patient, the present Local Governments will be responsible for the "operational activities such as case detection, treatment, case holding, health education" activities. All these

among the major components of Leprosy Control programme and it should be interesting to watch their performance of these activities.

Another dimension of responsibility of Local Governments is the "provision of Community Health Workers (CHWs) and Laboratory Technicians, for the TBL Control Programme." Community Health Workers are volunteers whose remunerations are very little in cash or in kind. The author is of the opinion that in a programme like TBL Control, volunteer workers should not be given such a big responsibility of case detection, case holding and laboratory diagnosis, on the ground that the dread of the disease and the stigma attached to it negate a sense of voluntary service.

Availability of Manpower

Of the three factors of production, manpower is the most important. All levels of manpower, highly trained, medium-level trained, and low level are important in leprosy services. But the five Leprosy Institutions in general, are lacking in trained personnel for leprosy services. As Table 1 indicates, only one of the five institutions studied had three Doctors (two of whom are sponsored by donor agencies); two of the Institutions have one Doctor each and one

has none at all. The disadvantages of the lack or inadequacy of this highly trained manpower are obvious - if the donor agencies withdraw their personnel there might be a collapse in the services; in the case of the one-doctor hospital, if the doctor goes on leave and there is no substitute, then there is no continuity of care.

From Table 4 one can see the need formore trained Leprosy Supervisors, another cadre of skilled manpower. In Ekpene Obom, of the five Leprosy Supervisors, only three are trained and these three are based at the centre in the Leprosy Control Unit. Ossiomo has 21 Supervisors and about five trained, Zaria, 17 with about three trained, Garkida, 21 with two trained, and Akure, 12 with two trained.

Perhaps the problem with the training of Leprosy Supervisors lies in the dichotomy of State and Local Government Supervisors. As Local Government Councils begin to shoulder more responsilities in Primary Health Care and Leprosy Control Programmes, the problem of dichotomy of staff arises - that of State Leprosy Supervisors and Local Government Supervisors. The problem arises when it comes to trning of the Supervisors who are the key personnel in leprosy field work.

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Usually the Local Government Council will have no funds to train these staff whereas the State will usually have while most of the State staff will be trained and posted to the Headquarters, that is, the leprosy hospital/control centre, very few or none of the Local Government staff may be trained. The imballance will definitely affect the quality of service in the control programme.

Infrastructure, Materials/equipment

Leprosy control work started in Nigeria, like in other countries where leprosy is endemic, as vertical programmes. The infrastructure was laid when mission agencies built leprosy hospitals, segregation villages, sanatoria and clinics for the treatment of leprosy patients. When the State Governments took over the running of these Institutions, they only strengthened the Institutions by ensuring regular subventions to cover staff salaries and running costs. All the Institutions etudied had a power generating plant which supplies electricity at least a few hours every day. All but one of the Institutions etudied had an operating theatre, diagnostic facilities and an out-patients department.

With the present set up of local governments, coverage is bound to increase since each Local Government has a role to play in extending leprosy services in its area of jurisdiction.

Services provided in the Leprosy Institutions

The services provided at the Leprosy Institutions include case finding and case holding, chemotherapy, physiotherapy, general health care, laboratory services, health education, rehabilitation and prosthesis.

One way of appraising health services is by applying the characteristics of primary health care. These are the quality of being:

- available
- accessible
- affordable
- acceptable
- assessable
- applicable
- attainable

Availability:

This factor is very important in health care delivery generally. It goes to the credit of the operators of the leprosy control programme that most of the services listed above are available in each of the institutions studied. This characteristic occupies the pride of place in that if the services are not available other characteristics cannot be talked about. It is the objective of the National Tuberculosis and Leprosy (T&L) Control Programme to make leprosy services available to every leprosy patient in the country.

Accessibility:

Implies both geographical accessibility and

financial accessibility. In terms of geographical accessibility, one referral leprosy hospital in a State surrounded by satelite clinics or treatment centres seems to be adequate. To apply the primary health care principle, no patient should walk more than five kilometers in search of a health centre, clinic or treatment centre. This principle seems to be met in each or the States of the Leprosy Institutions under study. A striking example is Gongola State. Gongola State is the third largest in land mass in the Federation, and had an estimated population of about 5 million in 1987, scattered all over the massive landscape. With 242 clinics/treatment centres, it can be assumed that no leprosy patient will have to walk too far to get treatment.

Affordability:

Akin to economic accessibility is affordability. In Nigeria, leprosy services are free of charge, and these include laboratory investigation, chemotherapy, General health care and physiotherapy, but the patient might have to pay some fee for his prosthesis.

Acceptability:

With increasing awareness of the disease as a result of health education of the public, leprosy

patients are increasingly accepting leprosy services. This is evidenced by the number who turn up every month for check-up at the hospital or clinics. An aspect of acceptance of services is expreseed in objective 5 of the National TBL control programme. It says "To integrate the care and control of the two diseases into the General Health Care services scheme based on primary Health Care System in the Country". When integration is achieved, complete acceptance shall have been attained.

Accessability:

Services can be assessed in terms of coverage, and efficacy of treatment by the number of patients who are certified 'cured'. MDT coverage is now one of the ways of assessing the efficiency of the control programme in the States that have introduced MDT. Objective 2 of the National TBL control programme states, "To provide effective treatment for all the patients by using multi-drug therapy regimen as recommended by the WHO for leprosy, and the short-course therapy for tuberculosis"

Applicability is the relevance of the service or treatment to the problem. Leprosy is a disease for which there

is no known effective native treatment. Even with the mono dapsone therapy the relevance of this treatment was fifty-fifty in that some M.leprae strains developed a resistance to dapsone. But now with MDT the relevance of the treatment is one hundred percent, because with efficient administration, cure is certain.

Attainability: This applies to the goal of the control programme services. The first objective of the national TBL control programme is to reduce the prevalence of the two diseases to a level at which they no longer constitute health problems in the country; and the sixth objective is, "ultimately, to eradicate the two diseases from our communities". With the type of services offered in the leprosy institutions studied, and with the adoption of MDT, these goals are attainable within the foreseeable future.

Logistics of delivering services

The discussion of the logistics of delivering service will be based on Mallac's (1967) components of Leprosy Field Logistics. Thus:

1. Organization and Communication: In Nigeria, leprosy control is on State basis. Every State has at least one leprosy hospital which serves as referral hospital for that State. The hospitals are known by various names - Specialist hospital, Referral Hospital, Leprosy Hospital, and so on. One of the Institutions studied is not a hospital but a segregation village. Each hospital is served by numerous clinics or treatment centres scattered all over the State. Leprosy Supervisors visit these clinics regularly to supervise the work of the field workers. For communication, there are no telephones and the only means of getting from clinic to hospital, or clinic to clinic is by road, or canoe in the case of riverine areas. Therefore means of communication is important as a logistic factor. Table 9 shows that each of the Institutions studied had a car for field work, motor cycles and bicycles for the Supervisors. Of concern to the Institutions is the adequacy or otherwise of these vehicles. Whereas Osalomo had recently received five motor cycles from the German Leprosy Relief Association (GLRA) in addition to the pool it already had; and whereas Zaria had ten motor cycles, Oorkiln had

none at all. Mobility is a factor in effective supervision, so where there is no mobility, supervision is handicapped.

2. Supervision and Coordination: Both the Doctor and the Leprosy Supervisor are supposed to supervise field work. Where there is only one Doctor, the visit to the outlying clinic cannot be done more than once a month, which would be very good if all the clinics can be covered; but this is far from being the case. In Sarkida such visit could be done once in three months (Table 10). However, the leprosy supervisors visit the clinics with greater frequency provided the means of mobility is available. For purposes of coordination each State is divided into zones and zones into Local Government Councils. Information could then flow from the Local Government Supervisor to the Zonal Supervisor who then sends it to the State Leprosy Hospital, and from there to the State Ministry of Health and thence to Federal Ministry of Health. As a strategy for the effective operation of the National TBL Control Programme, Federal Government plans to set up proper supervisory machineries at all levels - Federal, State and Local Government levels, which should be complementary to each other.

3.Case-finding: Case-finding methods were described in the Introduction (pages8-9) as a component of leprosy field logistics. Wallac (1967) gives five methods of case finding:- voluntary self-reporting, by contact tracing, by school surveys, upon notification, and through other sources. Table 12 shows that all the institutions studied get their patients by voluntary self-reporting, by referral (notification), relatives bring them (contact tracing) and by some informant. Only Zaria indicated survey as a method of case finding that it employs. Although other Institutions could not indicate what percentage of patients accrues to each of these categories, Zaria showed that 70 per cent of their case-finding came from voluntary reporting, 15 percent by referral, 10 percent through contact tracing and 5 percent at skin clinics.

4.Surveys: As already noted, surveys are a very effective method of case-finding, but they are expensive and time consuming. Only one institution, Zaria, indicated that it had carried out a school survey in its area of jurisdiction. However, survey is a very important aspect of Leprosy Control Programme, and so the Federal Government under her National TB, Control Programme, is planning for an epidemiological survey of

the disease to provide essential epidemiological base-line data.

Leprosy Health Education: Health education is a major component of Leprosy Control Programme. The Alma-Ata Declaration designated "education concerning prevailing health problems and the methods of preventing and controlling them" as the first of the eight eeeential elements of primary health care. Accordingly, the WHO Global Stategy for Health for All by the year 2000 and the WHO Seventh General Programme of Work give to information and education for health a role more prominent than ever before. WHO (1980) states that the objective of Health Education in leprosy should be to produce in the public, the patients, and in the families a reasoned attitude towards leprosy that neither exaggerates nor minimises the dangers of the disease. No leprosy campaign is complete without health education.

Patient education: An interview with some patients at different Institutions revealed that most patients still did not know what causes leprosy. Instead of a germ, they attributed it to enemy, witchcraft or evil spirit or punishment for sin. This is what health

education is supposed to correct. Knowing the real cause predisposes the patient to seeking medical attention; ignorance or wrong notions of the cause delays seeking medical attention and impels the patient to go to a herbalist or a native doctor.

Of over 300 patients in the five centres who were asked about the signs and symptom of leprosy, less than 20 percent knew at least one sign or symptom of leprosy. The author was aware that they had been taught, since the Institutions indicated in the responses that they taught health education. But health education is not a-one-time-shot affair. The frequency counts. Three of the Institutions held health education classes once a month, and that mostly on the prevention of deformities or further deformities. The author, therefore, proposes here a leprosy patient education on a weekly basis, to include: cause, signs and symptoms, prevention, and prevention of disabilities. By knowing the signs and symptoms, they will be able to detect it in their contacts and advice them to take medical treatment. Knowledge of what to do to prevent leprosy will eliminate leprosy, and knowledge of ways to prevent disabilities will prevent further disabilities.

Health education of the public: The fear of leprosy, the social stigma attached to it, and ostracism of leprosy patients by the society are attributed to ignorance and prejudice. There has been no organized public lectures so far to dispel this ignorance and prejudice. Only occasionally a national daily carries an article on leprosy, which may be anything but educative. However, some of the Institutions have started a public enlightenment campaign on leprosy. For example, a Health Education Committee was established at Zaria Leprosy Centre whose activity aims at "Stigma reduction in the general public is the key towards awareness and acceptance." And in Osslomo Specialist Hospital, a State philanthropic organization called Leprosy Control and Relief Association (LECRA) had been formed for purposes of public onlightenment on leprosy.

Education of the family: The patient's family should receive health education on leprosy to dispel the prejudices they might have had about leprosy. They should know that leprosy, being a germ-induced disease, is curable, and that early detection and prompt treatment is the key to its cure.

Medical Students, Physicians and Health Staff:

Concerning awareness and knowledge about leprosy, Ganapati (1987) noted that if we stratify the sections in a community which should receive health education about leprosy, one would place medical and paramedical sectors top of the list. Recent questionnaire study involving 106 private practitioners (Ugiekar 1987) has revealed startling findings as regards their awareness and knowledge of leprosy. While 70 doctors avoided questions about what causes leprosy, 14 answered correctly that it was caused by a germ.

Attitude of Leprosy Workers towards leprosy: Negative attitudes can ruin a well planned health programme. It is alleged that most Nigerian doctors and nurses and other high cadres of health workers do not like to work with leprosy because of the social stigma attached to the disease, the fear of contracting the disease, and the low salaries. With these in mind, ten attitudinal questions were developed to test the feelings of some leprosy workers towards leprosy and leprosy patients. The results shown in Table 16 (page 109 were startling even to neutral observers of leprosy work. The responses on each statement contra-

tently indicated a favourable attitude towards leprosy and leprosy patients.

The respondents consisted of Doctors, Nurses, Leprosy Supervisors, Physiotherapists and Social Workers. For each of the attitudinal statements, there were very few neutral responses, the great majority either agreed or disagreed with the statement. Even for statements which implied low productivity because of poor salary or low incentive or motivation, the response still indicated a positive attitude. It can then be concluded that generally well informed leprosy workers in Nigeria are not averse to leprosy work barring low salaries and incentives.

Another statement whose outcome tended to support the suggestion that higher wages would lead to increase in productivity or efficiency, was statement Number 5: "Higher wages for leprosy staff would make them perform all the activities expected of them toward leprosy patients." While 54.6 percent agree, 41 percent disagreed with the suggestion. Although these results seem to contradict the general belief that higher cadre workers are not attracted to leprosy work because of low wages and lack of incentives, it

cannot be concluded from this that this belief is false, because most of the respondents were of the middle level manpower, two-thirds of whom were nurses and supervisors. Finally, statement Number 10, dispelled the wrong notions that many people have had about the calibre of the people who work with leprosy. The statement was "Leprosy workers take up this job because they have no alterative." Sixty-seven (or 89%) disagreed with this suggestion. In fact many of the staff had other offers elsewhere and many were transferred from non-leprosy hospitals or other jobs to their present job.

Problems facing the Leprosy Institutions:

Some operational problems are common among the Institutions; those were described in the findings. Others are peculiar to the Institution having the problems; these are discussed here and their implications pointed out.

1. Ekpene Obom

(a) Manpower: This Institution had the problem of inadequate manpower for field work which is at the core of control programmes. The lack of Doctors or Leprosy Supervisors would

apparently result in inadequate supervision of field work. It could also lead to inefficiency since the few available staff are stretched to the utmost level. There are only three trained Leprosy Supervisors attached to the control unit at the centre in a total of five in the State.

(b) Transportation: The problem of transportation though common among the Institutions studied varies in degree of severity, some being more acute than others. This Institution had one motor cycle which is very inadequate. The Institution expressed need for more motor-cycles and a couple of four-wheel-drive vehicles for supervision of field work.

Drugs: Drugs in this Institution are less than optimal coverage of all the patients in the State. This is so because drugs are supplied by the State Government. Since, according to the National TBL control strategy, drugs will be purchased and supplied to all States in adequate quantities for implementation of MDT of all registered

cases of the disease, it is hoped that the drug situation in this Institution will improve.

2. Ogbomo

Transportation: Apart from finance which is a common problem, the major problem here seems to be lack of vehicles. Vehicles are needed here for the following purposes:

- combing villages for case-finding,
- conducting surveys

3. Zaria

Transportation: Although this Institution had 10 motor-cycles, it still needed 10 more for field supervisors; and a landcruiser vehicle for use by the medical officer.

Drugs and medical supplies: Non-leprosy drugs and basic medical supplied were generally in short supply; such drugs included antimalarials, antibiotics and haemotinics.

4. Gorkida

Transportation: This Institution had only one vehicle available for leprosy control. All her motorcycles had broken down and there was only one

functional bicycle at the centre.

Drugs: Irregular supply of dapsone, the only anti-leprosy drug used here as at now.

Patients' Welfare:

In a depressing disease like leprosy the social, economic and emotional needs of patients are important personal factors in leprosy control. It was shown in Fig. 3 - 10 that many of these patients cater for their own economic need.

Although in some centres, these needs were not well organized and met, various authors attest to the importance of meeting these other needs. Kaufman, Mariam and Neville (1986) state: "It is clear that personal, cultural, emotional and economic influences often have a very much greater effect on the patient's behaviour than do his medical needs. These other needs must be met if the medical care is to be effective. The more pressing needs for food, shelter and clothing, even social acceptance, will frequently have greater priority than medical needs." It would therefore, seem expedient that patients' social, economic and emotional needs be catered for in

those centres where these were lacking. Among other devices to meet patients' welfare, a club house, counselling and reassurance and transport money are some of the things that could be done.

Training of Staff

Training and retraining of leprosy staff is an essential aspect of the control programme. The leprosy Institutions studied lacked adequate number of trained personnel in different aspects of the control programme. Only two of the seven doctors in the five study Institutions were indegenous leprologists or have had sufficient experience in leprosy work; none of the physiotherapists anywhere was a Nigerian, and very few leprosy supervisors have had the training as a Supervisor.

The Federal Government has, therefore, taken steps to provide some training for some cadres of the workers by designating the Leprosy Control, Training and Research Centre in Zaria, Kaduna State, as the National Tuberculosis and Leprosy Training Centre. Doctors and other Supervisors attend short courses and receive their training at the All-African Leprosy and Rehabilitation Research Training Centre (ALERT), Addis Ababa Ethiopia. This is a welcome development.

Admissions and Discharges:

An effective leprosy control programme should have records of yearly admissions and discharges. Instances of such records keeping abound in the literature. In Itu Leper Colony, between 1931 and 1932, 53 cases were discharged as symptom-free after being in the Colony for 3 - 4 years for treatment with hydnocarpus (Macdonald 1931). Similarly in 1955, approximately 500 patients were discharged in the Northern Region after 2 years 9 months of treatment with DDS (Ross 1956). The study showed in Tables 15 and 16 that only two Institutions kept such a record up to date. Others should be encouraged to do so because such records help in the assessment of a control programme and in determining what facilities are needed to accomodate those who cannot go home.

Organization of Information System:

Data Collection and Reporting

As was pointed out in the Introduction, the system of reporting leprosy incidence or prevalence is far from satisfactory. The result of this unsatisfactory reporting is that Government cannot plan adequately for control programmes. The findings revealed that

the frequency of reporting cases to the State Government varied from institution to institution; similarly the frequency of reporting to the Federal Government varied from Institution to Institution. This means that the Federal Government cannot get all the information it needs on a particular leprosy issue at the same time. But there is hope yet.

According to the new organizational set up in the National TBL Control Programme, the three tiers of Government will collaborate in the collection, collation and analysis of data. The field workers on behalf of Local Government will collect, collate the data within its area of jurisdiction and transmit same to the State Government, who will collect, collate and analyse the statistical data from LGAs and transmit them to the Federal Ministry of Health for further action. Finally, the State should send regular reports on the control programme to the Federal Government.

The Role of Governments and Non-Governmental Organizations in Leprosy Control

The financial problems and sources of funding discussed above calls for the role of governments and voluntary organizations in leprosy control programmes. This study was conducted at a time when leprosy control was carried out on State basis, meaning that the extent of the control programme depended on how much of the resources a State was willing to put into it. As a result of this, control programmes are fragmented, under-staffing here and overstaffing there, as noted above, Fortunately, just at this time, control programme is about to take a different turn. The Federal Government has expressed her absolute commitment to the control of leprosy, and drawn up a national programme for leprosy control. It is, therefore, necessary to bring into focus the role the different tiers of governments are going to play in the control programme.

Responsibilities of Federal Government

The political commitment and will to control leprosy by the Federal Government has been affirmed, and the essential central administrative structure for the control programme provided by the Federal Government. To this end government has appointed a national director and Coordinator of the TBL Control Programme, and each State Ministry of Health has been enjoined to appoint its own State Coordinator who will be responsible for initiating the programme and ensuring continuity and progress.

On 19th March, 1990 a two-week training workshop on the first phase of the implementation of the National TBL Control Programme was inaugurated by the Federal Government at Abeokuta, Ogun State. Federal Government has drawn up a five-year Plan of Action for the TBL Control Programme beginning February, 1990, and has sought the assistance of external donors for its implementation. On July 30 - August 1, 1990, a meeting of all States TBL/PHC Coordinators, TBL control officers and Medical Superintendents of Mission Hospitals involved in TBL activities, was held at the Federal Palace Hotel, Ikoyi, Lagos, under the auspices of the Federal Government.

These activities are all indicative of the Federal Government commitment to the control programme.

Specifically, the Federal Government is responsible for the following, extracted from the National TBL Control Programme:

i. Policy formulation, planning, organizational strategies and periodic review and evaluation of the programme.

ii. Collation, analysis and interpretation of epidemiological data to provide the necessary information for evaluation and monitoring of the programme.

iii. Provision of financial and technical support; for procurement of drugs, laboratory equipment and reagents, and other essential materials for the programme.

iv. Assistance with man-power development for the various states by training and retraining of personnel.

v. Promotion of research activities in various areas of the control programme.

vi. Seeking support of International, Bilateral and National Agencies, and Non-governmental organizations in provision of funds, drugs, equipment,

reagents, vaccines, etc. as may be necessary for the programme.

State Government

i. The State Government will provide financial and material facilities for the control programme.

ii. The States will provide supervision of operational activities.

iii. The States should provide the essential referral services for the disease.

iv. They will provide Health Education and Community mobilization programme by establishing Leprosy Education Awareness Programme.

v. The States will promote the essential rehabilitation services, and after care, and give the necessary support to the Local Government or institutions for the provision of these services.

vi. The States will collect, collate and analyse the statistical data from LGAs and transmit them to the Federal Ministry of Health for further analysis.

Local Government

1. The Local Government is responsible for the operational activities such as case-detection,

treatment, case holding, health education, etc.

ii. Provide community Health Workers, including Laboratory Technicians, for the TBL Control Programme.

iii. Collect, collate and transmit the data from the field to the States for collation and transmission to the Federal Government.

iv. To ensure that essential requirements - human and materials - for the control activities are regularly available and appropriately utilized.

Non-Governmental Organizations (NGOs) and Voluntary Agencies (VAs)

The NGOs and VAs have very important roles to play in the Control Programme. Their areas of assistance include:

i. Drugs - Provision of drugs and assistance to procure them.

ii. Materials and equipment

- Laboratory Equipment and Reagents
- Radiography
- Foot wears, physiotherapy, artificial limbs, and other rehabilitation materials.

iii. Personnel Development:

a. Assistance in recruitment of experts.

b. Assist with recruitment of indigenous staff especially doctors.

iv. Health education:

Assist with health education programmes - development of health education materials; vehicles and equipment for health education and community mobilization programmes.

National Tuberculosis and Leprosy (TBL) Relief Agencies

Table 17 shows the various Non-Governmental Organizations/Relief Agencies that are interested in leprosy relief programmes in the country. In pursuance of her commitment to leprosy control in the country, and in her efforts to seek support of International, Bilateral and Non-Governmental Organizations in provision of funds, drugs, equipment, reagents, vaccines, etc, for the Tuberculosis and Leprosy (TBL) Control Programme, the Federal Government held meetings with many organizations and the result was the agreement reached with donor agencies as shown in Table 17, organized under the umbrella of the International Federation of Anti-Leprosy Association (ILEP). The agencies agreed to assist in leprosy control work in all the states of the federation.

b. Assist with recruitment of indigenous staff especially doctors.

iv. Health education:

Assist with health education programmes - development of health education materials; vehicles and equipment for health education and community mobilization programmes.

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CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary and Conclusion:

With 200,000 to 500,000 leprosy patients, Nigeria has the second largest leprosy problem in the world, next to India. Anti-leprosy work started in this country in the early 1930s. Despite the long existence of several leprosy institutions in various parts of the country, there is not much visible evidence that reasonable impact has been made on the leprosy situation. The reasons for this state of affairs include: inadequate funding by the Federal Government, expensive vertical programmes operated by Non-Governmental Organizations and Voluntary Agencies, limited funding by State Governments; ignorance, illiteracy and prejudice against leprosy. But the real problem of leprosy is not merely that of the number of cases, since it involves disabilities, economic loss to the individual, family and the community, psychological trauma and social stigma and ostracism. For this reason, this study looked into the operational factors that might hinder effective leprosy control. The factors include staffing,

materials and equipment, the logistics, finance and attitude of the workers. For the study, preliminary background information was gathered from the State Ministries of Health on the current leprosy situation in each State. The information include:

The number of Leprosy Institutions in the State,

The number of in-patients and out-patients,

The number of Doctors, Nurses, Leprosy Supervisors, Physiotherapists etc,

Types of services available

Having collected this information the next step was to decide which Institutions should be included in the study. A set of criteria for selection was drawn up and because of time factor, funds and distances to be covered, the selection was limited to one Institution per Primary Health Care Zone, the country having been divided into four Primary Health Care Zones. Five Institutions that met the criteria were selected:

A Zone: The O.I.C. Leprosy Hospital, Ekpene Obom, Akwa Ibom State

B Zone: Specialist Hospital, Oshogbo, Osun State and Leprosy Segregation Village, Akure, Ondo State

C Zone: Zaria Leprosy Hospital, Saye-Village, Zaria, Kaduna State.

D Zone: State Leprosy Hospital, Garkida, Gongola State.

Contacts, both personal and by correspondence, were made with these Institutions informing them of the desire to include their Institutions in the study. Questionnaires were then prepared and administered on the Institutions. Information sought included different categories of personnel available, means of communication and number of vehicles available, frequency of clinics, Health Education Classes, and frequency of visits to the out-lying clinics: methods of case-finding, sources of funding and availability of drugs.

The findings revealed that staff was not evenly distributed as Leprosy Control Programme was run on State basis. While one Institution was understaffed in the area of field work, others were adequate and one was overstaffed. Furthermore, Indigenous staff were lacking in the area of physiotherapy, all the trained ones in the Institutions where they were available were expatriates, and four out of the seven

doctors available were Nigerians. Of about 73Leprosy Supervisors available in the five Institutions studied, 15, or less than twenty percent were trained.

The study also revealed that means of transportation posed a serious problem to the delivery of services. All the Institutions had one car each for supervision; some had only one motorcycle for Leprosy Supervisors and two of them had 5 and 10 motorcycle respectively. One Institution had none at all and depended on one bicycle.

In Institutions where State Government supplied drugs, drug supply was a problem because they were not available always because of shortage of funds. Health education was based mainly on how to prevent further disabilities but little on ways of preventing leprosy from spreading. Recently some centres began health education of the public. The everriding benefit of Health Education of the public is that it leads to voluntary self-reporting of the patients. This is a measure of the efficacy of Leprosy Health Education. The study also revealed the manner by which patients came to the hospital. Case-finding methods common to the Institutions were:

(i) voluntary reporting by patients

(ii) by referral from other hospitals, health centres or clinics;

(iii) by contact tracing. One Institution indicated survey as one of the case finding methods it used

Apart from the chemotheropeutic needs of the patients, there were other needs, financial, social, psychological and spiritual, that must be satisfied. While every Institution had Churches and Mosques to meet the patients' spiritual needs, each of them had a different way of meeting patients' financial, social and psychological needs; while some Institutions gave the patients pocket money or transport money to travel home on discharge, others gave them some portions of land on which to farm.

An interesting develcpment was taking place in leprosy control at the time of this study. The Federal Government was planning to get seriously involved in Leprosy Control Programme. It has initioted a five-year programme (1990-1995) for the control of the disease. It had delineated the responsibilities of the three tiers of Governments,

Federal, State and Local Government Councils, in the control programme. Among the strategies for meeting its objectives were the involvement of Non-Governmental Organizations (NGOs), and Voluntary Agencies (VAs) to provide the logistics support for the control programme. Such support included provision of drugs and assistance to procure them; materials and equipment such as laboratory equipment and reagents, radiography, physiotherapy, artifical limbs and other rehabilitation materials personnel training and development of health education materials. Other strategies were: planning and epidemiological survey, case-detection, training of personnel of various cadres, development of proper laboratory services in each State to ensure high standard of bacteriological investigations, devising a system of proper record-keeping and statistical returns, setting up a proper supervisory machinery for effective supervision at Federal, State and Local Government levels, an effective referral system for each State, and a well organized health education of the patients and Community Mobilization of the general public. With the political will and financial commitment of the

Federal Government, coupled with the leading role of the State Governments, and the assistance of Local Governments and Non-Governmental Organizations, Leprosy Control can be achieved in this Country, and final eradication a reality.

RECOMMENDATIONS

The recommendations herein made are intended for the stregthening and optimizing of leprosy services in Nigeria.

1. FINANCING

Although the Federal Government had supported leprosy work in the paut by encouraging states to embark on leprosy control schemes, it hod not specifically given financial support to the leprosy institutions for control programmes. And olthough these programmes still enjoy the support of international donors, in the future there mty be a substantial reduction or totol withdrownl of funding from these sources, thus seriously jeopordizing the programmes.

It is therefore recommended that government should make substantial financinl contributions to leprosy control programmes, to enable the institutions purchase vehicles for field work, train staff and purchase drugs when necessary.

2. Health education is a major component of leprosy control programme, yet only one institution had the benefit of the services of a trained health educator. It is therefore recommended that there should be a

trained health educator in every leprosy institution.

3. CASE - FINDING

Although in every leprosy institution voluntary reporting, contact tracing and referral are the major case-finding methods, other methods like school survey and special group survey should be employed. For fear of stigmatization, many cases remain unreported and undetected unless some kind of survey is carried out. Survey as a case - finding method is therefore recommended.

4. REHABILITATION

Rehabilitation plays a major role in leprosy control programme. As was noted generally in the study institutions and in Tables 15 and 16 in particular, many of the discharged patients cannot go back home for various reasons - either they have no homes, or land, or are not wanted, or are totally disabled to be able to cater for themselves. So they stay back around the institutions and thus become a problem to the institutions. Government should therefore assist in rehabilitating these totally disabled patients.

5. MOTIVATION OF LEPROSY WORKERS

Although leprosy workers in the country seem to like their work, they should be further encouraged to attain greater efficiency and productivity, by giving them incentives in the form of higher wages or allowances.

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APPENDIX I

BACKGROUND INFORMATION ON CURRENT LEPROSY SITUATION IN THE COUNTRY DEC. 1987

ST	LEPROSY INSTITUTION	NO. OF IN-PATIENTS	NO. OF OUT-PATIENTS	NO. OF DOCTORS	NO. OF NURSES	OTHER PARA-MEDICAL STAFF	SERVICES OFFERED
Akwa Ibom	G.I.C. Leprosy Hospital	77	1796	2	16	16	Clinical and Rehabilitative
Anambra	-	-	-	-	-	-	-
Benchi	-	-	-	-	-	-	-
Benfel	Specialist Hospital Csaioma	2530	7967	2	-	-	-
Benue	Benue Leprosy Settlement MAKAR	72	28382	2	18	132	Clinical and Rehabilitative
Borno	Six-zones	-	21643	4	-	287	-

APPENDIX CONTD.

BACKGROUND INFORMATION ON CURRENT LEPROSY SITUATION IN THE COUNTRY DEC. 1987

State	Leprosy Institution	No. of In-patients	No. of Out Patients	No. of Doctors	No. of Nurses	Other Para-Medical Staff	Services Offered
Cross River	Clinics	-	2266	2	7	90	Treatment
Gongola	State Lep. Hospital Garkida	75	14130	-	3	60	Chemotherapy
Imo	Leprosy Research Referral Hosp. Uzuakoli	115	966	1	-	33	Treatment Case-finding Rehabilitative
							Clinical and Rehabilitation
Kaduna	Leprosy Control & Research CTR Zaria	60	54	5	12	21	-
Kano	-	-	-	-	-	-	-
Katsina	-	-	-	-	-	-	Clinical Rehabilitation
Kwara	Ctau-Arar. Leprosarium Ctau-Arar Ilorin	365	399	2	-	48	Clinical
				1	1	4	
Lagos	Clinical	-	2194				

BACKGROUND INFORMATION ON CURRENT LEPROSY SITUATION IN THE COUNTRY D. 1987

State	Leprosy Institution	No. of In-pat.	No. of Out-pat.	No. of Drs.	No. of Drs.	Other para-medical sff.	Services Officered
Niger	-	-	-	-	-	-	-
Ogun	Leprosy Control Unit Abeokuta	178	259	1	-	5	Clinical & Rehab.
Ondo	Akure Segre-gation Vill.	472	306	-	2	1	-
Oyo	Baptist Lep. Hosp. Oroomosho	23	365	2	1	-	-
Plateau	Mangu Lep. & Rehab. Centre	149	669	3	2	4	Clinical & Physio.
Rivers	Chara Clinic Chrara, Eleme	30	209	1	-	7	Medical & Physiotherapy
Sokoto	Amanawa Lep. Hosp. etc.	2270	46,669	-	22	37	Clinical & Rehab.

APPENDIX 2 QUESTIONNAIRE

FORM A: General Information about the Leprosy Hospital under study
(To be filled by hospital administrator, or Chief Medical Director or the Secretary or a nominee)

1. Name of hospital:

2. Location:

3. Whether government owned/supported, or voluntary agency, or both (Circle as applicable)

4. Source of revenue:

5. Please supply the available number of personnel in this Table:

No.	Doctors	Nurses	Physiotherapists	Occupational Therapists	Prosthetists	Paramedical Aids	Leprosy Supervisors	Social Workers	In-patients	Out-patients	Clinics under supervision of this hospital

6. Services provided at this hospital (Tick ▱ where applicable)

1. Chemotherapy ▱ 2. Case management ▱

3. Rehabilitation ▱ 4. Health Educ. ▱

APPENDIX 2 CONTD

5. Physiotherapy ☐ 6. Occupational therapy ☐

7. Prosthesis ☐ 8. General H. Care ☐

9. Psychotherapy ☐

7. Please supply the information required by filling this Table.

Year	80	81	82	83	84	85	86	87	88
No. of patients admitted									
No. discharged									
No. that actually go back home									

8. Means of getting to the outlying clinics:

1. Cars ☐ 2. Motocycle ☐ 3. Bicycle ☐

4. Canoes ☐ 5. Any other (specify) ☐

APPENDIX 3

FORM B: Doctors/Administrators Questionnaire

Place a tick (✓) in the appropriate box(es)

1. Name hospital _____

2. Your qualifications:

3. Years of experience on the job:

4. How often do you hold clinics here? ☐ Daily

2. Weekly ☐ 3. Biweekly ☐

4. Monthly ☐ 5. Other (specify) ☐

5. How often do you visit outlying clinics?

1. Weekly ☐ 2. Biweekly ☐ 3. Monthly ☐
4. Other (specify) ☐

6. How is your centre linked with outlying clinics?

1. Roadnetwork ☐ 2. Ferry services ☐

3. Railroad ☐ 4. Postal services ☐

5. Telephone ☐ 6. Other (specify) ☐

7. Means of transport available: 1. Car ☐

2. Motocycle ☐ 3. Bicycle ☐ 4. Ferry ☐

5. Railway ☐ 6. Other (specify) ☐

8. How often do you have fresh supply of drugs?

1. Regularly ☐ 2. Once in a while ☐

3. When funds are available ☐ 4. Other (specify) ☐

9. How would you rate your staff strength?

1. Understaffed ☐ 2. Adequate ☐

3. Overstaffed ☐ 4. Other (specify) ☐

10. If understaffed, in what area? _____

If overstaffed, in what area? _____

11. What operational problems do you have in the day-to-day running of the centre?

1. Financial ☐ 2. Manpower ☐ 3. Transport. ☐

4. Drug and medical supplies ☐ 5. Stationery ☐

6. Food supply ☐ 7. Other (specify) ☐

APPENDIX 3 CONTD

12. How often are health education classes held with the patients?

1. Weekly ☐ 2. Monthly ☐

3. As occasion warrants it ☐ 4. None ☐

13. How often are cases reported to the State Govern.?

1. Monthly ☐ 2. Quarterly ☐ 3. Half yrly ☐

4. Yearly ☐ 5. Other (specify) ☐

14. How do cases (new patients) come to the hospital?

1. By referral ☐ 2. Patient voluntarily come ☐

3. Relatives bring the patient ☐ 4. Some infor. ☐

5. Other (specify) ☐

15. What problems does the hospital have with discharged patients? _____

_____

16. How does the hospital meet the following needs of the patients?

1. Financial: _____

2. Social _____

3. Spiritual _____

4. Psychological _____

17. Please outline the system of reporting incidence of leprosy to the Federal Government.

APPENDIX 4

Form C. Staff Questionnaire

Please answer the following questions truthfully. The information supplied will be used in a study to improve leprosy control programme.

Tick (_/) the appropriate box against your answer:

Section A: Demographic data

1) Sex: 1. Male ☐ 2. Female ☐

2) Designation: 1. Doctor ☐ 2. Nurse ☐

3. Leprosy control officer/supervisor ☐

4. Physiotherapist ☐ 5. Health worker ☐

6. Social worker ☐ 7. Other (specify) ☐

3) Where did you work before? _____

4) How long have you served here in this leprosy hospital? _____ years.

5) List your major activities here:

1. _____ 2. _____

3. _____ 4. _____

(Tick only one space)

Section B: Attitudinal Questionnaire

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1. The stigma on lepr. patients of being 'unclean' is based on prejudice and not on founded facts					

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
2. Health care workers should chat with the leprosy patients only when they are performing their official duty					
3. A leprosy staff should quickly switch to another job that offers him/her the same wages whenever an opportunity occurs					
4. Children of lepro. patients should not go to the same schl. with other children whose parents are not lepromatous					
5. Higher wages for leprosy staff would make them perform all the activities expected of them towards leprosy patients					
6. Taking care of leprosy patients is a satisfying job					
7. Health workers should not mind hiring discharged leprosy patients as house help					

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
8. The care of lepr. patients should be integrated with the primary health care services					
9. All leprosy pats. should compulsorily be isolated so as not to spread the disease					
10. Leprosy workers take up this job because they have no alternative					

11. Your age is

1. less than 19 years ☐
2. 19 - 29 years ☐
3. 30 - 39 years ☐
4. 40 - 49 years ☐
5. 50 and above ☐

Thank you.

APPENDIX 5

African Regional Health Education Centre,
Department of Preventive & Social Medicine,
University College Hospital,
Ibadan.

20th July, 1990.

Dear Dr. Ibanga,

SOME INFORMATION NEEDED TO COMPLETE THE ANALYSIS OF THE DATA I RECENTLY COLLECTED ON LEPROSY SERVICES

1. In question 9 of the questionnaire (Form B) you indicated that you were understaffed. How does this understaffing affect leprosy services in the State?

2. In question 11 of the Questionnaire (Form B) you stated that the lack of inadequacy of the underlisted items constituted a problem in the operation of leprosy services in the State. How does each of them constitute a problem? (Try to quantify the problem, if possible, directly or indirectly. For example, in the case of finance, state what the needed money could do or buy):

   a. Finance
   b. Manpower
   c. Transportation
   d. Drugs and medical supplies
   e. Stationery
   f. Food supply

3. In question 15, you indicated that there is inter-marriage among the patients. What problems does this present to the centre?

4. Approximately what percentage of the operational costs of leprosy services is borne by:

   a. the State Government
   b. Federal Government
   c. Voluntary Organizations (e.g. [illegible], [illegible], etc.)
   d. Others (Individuals, Philanthropists, etc.)

(Please mail this form back to me using the above address. I count on your prompt reply as I am running out of time. Thank you very much for your continued co-operation).

Very sincerely,

[illegible]

Appendix 5
Contd.

African Regional Health Education Centre,
Department of Preventive & Social Medicine,
University College Hospital,
Ibadan.

26th July, 1990

Dr. Nick Metcalfe,
P.M.O. Incharge,
State Leprosy Hospital,
Garkida,
Gongola State.

Dear Dr. Metcalfe,

I visited the hospital for the study on leprosy towards the end of June only to learn that you were away on leave in the Netherlands. I hope you are back now, so I welcome you back from your leave.

Both Mr. Gangso and Mr. Mitrus helped to fill the questionnaires, Form A and Form B, respectively, and I am very grateful to them.

However, I still need some more information to complete the data I collected for analysis. Please fill the enclosed questionnaire and mail it back to me using the above address. I count on your prompt reply as I am running out of time.

Thank you for your continued co-operation.

Very sincerely,

E. A. Akpan

1. In question 11 of the Questionnaire (Form B) it was indicated that the lack or inadequacy of the under-listed items constituted a problem in the operation of leprosy services in the State. How does each of them constitute a problem? (Try to quantify the problem, if possible, directly or indirectly, For example, in the case of finance, state what the needed money could do or buy)

   a. Finance

   b. Transport

   c. Drugs and medical supply

   d. Stationery

   e. Learning materials

2. In question 13, it was indicated that there is inter-marriage among the patients. What problems does this Present to the centre?

3. Approximately what percentage of the operational costs of leprosy services is borne by:

   a. the State government

   b. Federal government

   c. Voluntary organization (e.g. ELFA, NCL, etc)

   d. Others (individuals, philanthropists, etc)

4. The total number of clinics (State wide) under the supervision of this hospital.

5. Your qualifications and years of experience on the job. (These items should not be filled for you)

APPENDIX 5 CONTD

Department of Preventive and
Social Medicine,
University College Hospital,
Ibadan.

26th July, 1990.

Dr. Louis Gossenhoven,
S.M.O.,
K.D.L.C.,
P.M.B. 1089,
Zaria.

Dear Dr. Gossenhoven,

Some information needed to complete the analysis of the data I recently collected on leprosy services.

1. In Question 11 of the Questionnaire (Form B), you indicated that the lack or inadequacy of the under-listed items constituted a problem in the operation of leprosy services in the State. How does each of them constitute a problem? (Try to quantify the problem if possible, directly or indirectly. For example in the case of finance, state what the needed money could do or buy):

   a. Finance

   b. Drugs and medical supplies

   c. Food supply

2. In Question 13, you indicated that there is intermarriage among the patients. What problems does this present to the centre?

3. Approximately what percentage of the operational costs of leprosy services is borne by:

   a. the State Government

   b. Federal government

   c. Voluntary organization (e.g. CCCN, NSL, etc)

   d. Others (individuals, philanthropists, etc)

(Please mail this form back to me using the above address. I count on your prompt reply as I am running out of time. Thank you very much for your continued cooperation).

Very sincerely,

E. A. Akpan.

APPENDIX 5 CONTD

Department of Preventive and
Social Medicine,
University College Hospital,
Ibadan.

26th July, 1990.

Mr. P. A. Ojo,
Leprosy Central Unit,
Akure.

Dear Mr. Ojo,

SOME INFORMATION NEEDED TO COMPLETE THE ANALYSIS OF THE DATA I RECENTLY COLLECTED ON LEPROSY SERVICES

1. In question 11 of the Questionnaire (Form P), you indicated that lack of transportation constituted a problem in the operation of leprosy services in the State. How does it constitute a problem?

2. In question 13, you indicated that there is intermarriage among the patients. What problems does this present to the centre?

3. Approximately what percentage of the operational costs of leprosy control services is borne by:

   a. the State government
   b. Federal government
   c. Voluntary organisation (e.g. CIDA, TLM, etc)
   d. Others (individuals, philanthropists, etc)

(Please mail this form back to me using the above address. I count on your prompt reply as I am running out of time. Thank you very much for your continued cooperation.

Yours sincerely,

APPENDIX 5 CONTD.

Department of Preventive and
Social Medicine,
University College Hospital,
Ibadan.

26th July, 1990.

Dr. T. O. Majoroh,
Medical Director,
Ossiomo Specialist Hospital,
P.M.B. 2008 Agbor,
Bendel State.

Dear Dr. Majoroh,

SOME INFORMATION NEEDED TO COMPLETE THE ANALYSIS OF THE DATA I RECENTLY COLLECTED ON LEPROSY SERVICES

1. In Question 11 of the Questionnaire (Form B) you indicated that the lack or inadequacy of the underlisted items constituted a problem in the operation of leprosy services in the State. How does each of them constitute a problem? (Try to quantify the problem if possible, directly or indirectly. For example, in the case of finance, state what the needed money could do or buy)

   a. Finance
   b. Transportation

2. In question 13 you indicated that there is intermarriage among patients. What problems does this present to the centre?

3. Approximately what percentage of the operational costs of leprosy services is borne by:

   a. The State government
   b. Federal government
   c. Voluntory Organization (e.g. CLRA, NSL, etc)
   d. Others (individuals, philantropists, etc)

Yours sincerely,

E. A. Akpan.

APPENDIX 6

COLLEGE OF MEDICINE

DEPARTMENT OF PREVENTIVE AND SOCIAL MEDICINE

UNIVERSITY OF IBADAN, IBADAN, NIGERIA.
Telephone: Ibadan 400010-400579 (20 Lines)
Telex: Campus 31128 NG
Cables & Telegrams: University Ibadan

UNIVERSITY COLLEGE HOSPITAL
IBADAN, NIGERIA
P.M.B. 5116
Telephone: Ibadan 400010-400029) Ext. 255
400080-400098)
411430 Direct Line
Telex: 31520 NG
Telegrams: Teaches Ibadan

9th February 1989.

TO WHOM IT MAY CONCERN

RE: MR. E.A. AFAN
M.Phil/Ph.D (Health Education)

The above-named is a postgraduate student of this Department and should be grateful if he is given the necessary assistance.

Thank you.

DEPT. OF PREVENTIVE & SOCIAL MEDICINE
COLLEGE OF MEDICINE
09 FEB 1989
UNIVERSITY OF IBADAN

A.B.O. Oyediran,
Professor & Head of Department.

APPENDIX 7

Department of Preventive & Social Medicine
College of Medicine
University College Hospital
Ibadan.

9th January, 1990

The Medical Director
The State Leprosy Hospital
Garkida
Gongola State

Dear Sir,

Behavioural Factors affecting Leprosy Control in Nigeria

I am a research student in the above named department of the College of Medicine, University of Ibadan. From data I collected earlier from the States Ministries of Health, I have selected your hospital for a research on the above topic. Kindly supply the following information specifically on your hospital to enable me plan the course of the study:

(i) Number of in-patients now
(ii) Number of out-patients (those who only come for clinics here).

After hearing from you I will visit the hospital for discussions with you and solicit your cooperation in carrying out the study.

Thank you for your cooperation.

Yours faithfully,

E. N. AKPAN

APPENDIX 8

Department of Preventive and
Social Medicine,
College of Medicine,
University College Hospital,
Ibadan.

15 August 1990.

The Minister of Health,
Federal Ministry of Health,
Ikoyi,
Lagos.

Dear Sir,

Request for information

I am doing a study of leprosy services in some Leprosy Hospitals in the country. I would therefore appreciate to information on the underlisted items to enable me do a valid study. They are:

1. Federal Government Policy on Leprosy Control
2. The Objectives
3. The Strategies
4. Federal Government Contribution (in cash or kind) to Leprosy Control.

Thank you Sir for your cooperation.

Yours faithfully,

T.A. Akpan.