



CHAPTER 1

INTRODUCTION

1.1 Background

Onchocerciasis or River blindness is a major parasitic disease which is endemic in large parts of Western Africa and in some countries of Central and Southern America (W.H.O., 1987. Quoted in Plaiser and others, 1990). The disease is caused by Onchocerca volvulus which is a filarial worm that is transmitted from man to man from bites of the Simulium (Blackfly).

Important foci of the disease can be found close to fast-flowing rivers where transmission is highest (Plaiser and others, 1990). According to W.H.O. (1987), this makes the disease a major obstacle to socio-economic development of fertile river basin areas which justifies the broad attention for both the nature of transmission and the possibilities of its control.

Symptoms of onchocerciasis include onchodermatitis (which manifests as itching), nodule formation, skin depigmentation (leopard skin), hanging groin, hydrocele, and ocular impairment which ultimately leads to blindness. Either one or any combination/s of these symptoms will be present in someone with the disease.

Onchocerciasis constitutes a major public health problem in Nigeria, with approximately 40 million people at risk of infection (Akpala and others, 1993). Nigeria is the most endemic country in the world for Onchocerciasis, and about 3.5 million people are infected (National Onchocerciasis control project (NOCP), 1993). In some parts of the country, some communities have 100% infection rate, and the range is between 44.8% and 94.7% in some others (Akogun and Onwuliri, 1991). Another study found 78.8% prevalence rate in another community (Gemade and Utsalo, 1990). Such patterns exist in affected communities all over Nigeria.

Onchocerciasis is a debilitating disease that causes all kinds of morbidity as seen above. It is also a stigmatizing disease. A multi-disciplinary study in Nigeria investigated the importance of the disease to adolescent girls. The researchers learnt that skin disease from onchocerciasis was dreaded by the population and that it was an impediment to marriage among those with visible signs of the disease, and that it was an important cause of divorce especially for women (Amazigo and Obikeze, 1991. Quoted in Vlassof, 1992).

Ufomadu and others (1992) investigated the prevalence, geographical and clinical manifestations of onchocerciasis in some parts of Nigeria, and they identified the various clinical diseases caused by human onchocerca volvulus infection. Nwoke and others (1992) investigated the ecological background, local disease perception and

treatment together with vector/parasite dynamics. They noted that though villagers in endemic areas were of the know of the nuisance of blackfly bites, the majority of them lacked the etiological knowledge of onchocercal lesion. Hence, disease management was misdirected towards consulting the oracle and appeasing the gods.

The intensity of infection with clinical onchocerciasis increases with age (Ufomadu and others, 1992). The prevalence of onchodermatitis and nodules peaks between the ages of 30 to 39 years (Chijioke and others, 1994). It therefore affects the productive age groups more with dire consequences for their families and communities.

1.2 The problem

The method for the disease eradication/control in Nigeria is through mass distribution of ivermectin (Mectizan[®]). It is a safe and effective drug for the mass treatment of onchocerciasis and when used on an individual basis, it reduces the ability of the treated person to transmit *onchocerca volvulus* infection (Taylor and others, 1990).

Though the drug is provided free of charge by the manufacturers (Merck, Sharp and Dohme), the cost of delivering it to final consumers is very high. The projected cost of distributing the drug to affected communities almost equals the sectoral allocation to health, which in 1989 was approximately US \$58 million (NOCP. Quoted in Akpala and others, 1993B). However, a study estimated the direct cost of delivering a dose of ivermectin to an individual to be between Nigerian Naira = ₦3.7 to 9.2 depending on the distribution scheme employed. (Akpala and others, 1993B). (₦22.00 = US\$1.00 according to the 1995 official exchange rate). However, due to almost 60% inflation rate in Nigeria, the cost is assumed to have gone up about six times. Therefore, the new cost to be used for the purpose of this thesis is between ₦20.00 to ₦50.00.

The high cost of drug delivery has resulted in less than 30% of affected communities being covered by mass distribution of ivermectin, and making the achievement of the target set by the Federal Ministry of Health for the eradication of the disease by the year 2008 a mirage. From the progress report of the NOCP; 513,000 people were dosed with ivermectin in 1992, and 578,000 in 1993 (NOCP unpublished report, 1994). This also means that less than 2% of those at risk were covered.

Even in communities where donor agencies funded the distribution of ivermectin, this was purely on a project basis and most projects ended after 5 years with no possibility of continuation in the communities. A common practice with some donor agencies is to identify "willing" communities by long, very time consuming subjective methods before starting a project. This is with the hope that those communities can continue with the programme after their 5 year project ends, but this is never the case because some communities termed "willing" were not really able and willing. This makes almost all the money they spent in 5 years a waste.

This is because it is estimated that onchocerciasis needs at least yearly uninterrupted dosing with ivermectin for 10 to 15 years before the transmission cycle can be completely broken in a community. This is due to the fact that the mean reproductive life-span for *onchocerca volvulus* is 9 to 9.5 years with an upper limit of 15 years for 95% of infections (Remme and others, 1990). Sustainability thus is a major problem facing onchocerciasis control in Nigeria.

Identified problems that also contributed in weakening the onchocerciasis control programme in Nigeria are :-

1. High operating costs especially personnel and other recurrent costs.
2. An organizational system that does not fully integrate community groups.
3. Almost whole funding by external donor agencies which is fast drying up (almost 60% of NOCP budget is from donors).

An organizational system that does not fully integrate community groups coupled with almost whole funding by external donor agencies has limited the resources available for the programme and other avenues must be sought. This is because few, if any health system rely exclusively on a single source of finance (WHO study group, 1993). This is against the shadow of declining foreign aid channeled to the health sector in developing countries. According to de Ferranti (1985), AID from developed countries and international institutions is limited. In the early 1980s, external aid for all sectors has fluctuated between approximately 3% and 13% above the 1979 level of \$3.5 billion, but health's proportion has not increased and may even have fallen.

Also, the little contribution from the government to the health sector has decreased considerably in real terms due to the effects of the structural adjustment programme and political instability. For many countries, the key question about government outlays for health in the years ahead will not be whether new plateaus can be reached but whether old ones can be maintained (de Ferranti, 1985). Health for all by the year 2000 is unlikely to be achieved in a number of Third world countries, including those in Sub-Saharan Africa, if reliance is placed solely on the public health budget (Carrin, 1987).

According to de Ferranti (1985), evidence suggests that government spending on health services in developing countries has been increasing in real per capita terms in many places but not universally and drifting downward as a percentage of total public expenditure, though again not uniformly. The average shares of public health expenditures in GNP are only 0.95 and 1.9% for low income and middle income sub-saharan Africa respectively (Carrin, 1987). For Nigeria, it was 2.2% in 1977 (de Ferranti, 1985). Unofficial sources put the figure at about 1% presently in Nigeria.

In summary, the problem is what alternative financing

mechanisms are there to fund and sustain endemic disease control activities over many years. This is given the obvious budgetary constraints of government and declining foreign AID from donors.

1.3 Rationale

The lack of adequate funding from the government has been aggravated by the emergence of many diseases with devastating effects like AIDS competing for limited funds. There is therefore an urgent need to find additional sources of finance. The bleak outlook for funding from outside the health sector has lent added urgency to the exploration of options for mobilizing additional resources within it. In essence, this means considering whether households should pay for services, and if so, what form should such payment take (de Ferranti, 1985).

A major and very promising untapped source is community financing in its various forms. Advocates of community financing argue that it is a largely untapped source and may be the only feasible way of overcoming the lack of funds for Primary health care (Stinson, 1984).

1.3.1 Why community financing?

1. Most rural communities in Nigeria are medically underserved. Given their limited resources, both Federal and State governments cannot provide health facilities in every community. Medically underserved communities must, therefore provide their own health facilities in order to promote, protect, and maintain their health (Ojanuga, 1985).

2. Individual households often spend substantial private funds on health (de Ferranti, 1984). Private spending on health care in Third world countries is quite high as a percentage of income and may in fact account for two-thirds or more of total health expenditures (Golladay and Liese, 1980. Quoted in Akin and others, 1985). This seen from the amount spent on first and second treatment before visiting malaria clinics in Thailand. This same situation is also applicable in Nigeria, where people afflicted with onchocerciasis expend a lot of funds on traditional healers, and other ineffective health care measures. Redirecting this expenditure towards services with greater impact will not necessarily place any additional financial burden on the community ("Summary of proceedings" in Health Care Financing, Asian Development Bank, 1987).

3. There are many good examples of successful community financing schemes in Nigeria (Ojanuga, 1985. Ransome-kuti and others, 1992). Akpala and others (1993a), investigated community participation and financing of mass distribution of ivermectin in Eastern Nigeria. There, communities donated land, labor and non-monetary capital for the success of the programme. The importance of community participation in improving the degree of acceptability of health programmes and minimizing the cost of drug delivery by harnessing locally available

resources were stressed.

4. Community financing gives the community the right to ensure that services are acceptable and respond to the priorities as judged by the community, and this will ultimately increase utilization (Abel-Smith and Dua, 1988). According to the same authors, it will also help in achieving a perceptible increase in health awareness amongst the community.

5. Abel-Smith and Dua (1986) analyzed the potential of community financing of the health sector in developing countries and they examined community financing schemes all over the world. They concluded that using various criteria such as efficiency, equity, the net addition to available health resources, and their utilization, it was evident that community financing does have a definite role to play in extending the activities of the health sector in developing countries.

6. In his review of various forms of community financing and experiences with drug financing schemes Sub-Saharan Africa. Carrin (1987) discussed the considerable constraints on the public health budget there. and postulated that community financing is one of the methods that could be used to allocate more resources for health purposes. He recommended that it is essential that the population to be covered by a financing scheme can somehow be involved in establishing the rules of the scheme. Also, the perception of the population about the trustworthiness of the management of a scheme, its capacity and willingness to pay for drugs and health care in general, its willingness to pay in advance, and its notion of equity, all need to be taken into account in the selection of an appropriate financing method. Otherwise, serious problems of compliance with a scheme's rules may arise. He concluded with the point that amongst other things, in-depth information about the population's socio-economic status and its preferences ought to be collected before policy advice is formulated concerning the optimum financing of drugs and health care in a particular community.

1.3.2 Why the use of the ability and willingness to finance approach?

1. It is difficult to prejudge a community's capacity to satisfy its basic needs, because no satisfactory method has been developed to predict the potential resources of a poor community. To improve their health conditions, all people. even poor, have some resources available (Jancloes and others, 1985).

2. Ivermectin is a private good and gives private utility in consumption, though the benefit is both private and social since onchocerciasis has externalities. Therefore because of these private excludable consumption, utility and benefit, the willingness to pay or voluntarily contribute to a community financing mechanism is expected to be high among those who have the ability to pay/contribute.

3. The sense of social contract and social obligation is strong in Nigerian culture. Communities can easily come together for a common cause; here financing the procurement and distribution of ivermectin. Also, because of the close knit social set-up, the communities are expected to ensure equity by making the drug available to those who lack the ability to finance.

4. Wibulpolprasert (1992) examined Thailand's community financing experience. The author explained the basic concept behind the development of various community financing schemes for health in Thailand, as well as the factors contributing to either their success or failure. The paper concluded that in Thailand, funds that meet peoples' demands and which are easily managed like drug funds are the most successful. In setting up drug funds, qualitative methodology was used to determine a community's ability and willingness to finance the programme. Meetings were held with community members and if at least 70% of the households agreed, then the fund was set up.

5. Chabot and others (1991) investigated the national community health insurance at village level in Guinea. They pointed out that collective health insurance may be feasible and manageable. This is if the village population is allowed to decide on the amount of money and method of collection and if the government supports the scheme by guaranteeing sufficient drugs at low prices, effective control measures and a village health worker who is officially part of the referral system. They concluded by pointing out that the scheme tends to reinforce solidarity and collective decision making at village level.

6. Stinson (1984) reviewed what has been attempted in the way of community financing of health care in more than a hundred projects and programmes. Arguments by both the advocates and opponents of community financing were presented, and he analyzed all the issues affecting them. He noted that whenever partial community financing has been attempted, the usual approach has been to identify specific costs and ask the community to cover them. Also, this choice generally reflects national budgetary constraints, not the communities' willingness and ability to pay. He stated that community financing would be more viable if planners started by studying demand.

Though successful, most of these community financing schemes reviewed in the two sections above were spontaneous and did not follow any carefully designed model. Many other schemes failed. The issue of consumer choice and ability and willingness to finance these schemes were not properly addressed in most of the schemes. This inevitably led to the sub-optimal performance of many of them. The use of ability and willingness to finance is therefore to explore the possibilities of community financing using some developed criteria and to translate the results into a Community Financing model.

Therefore, a methodology or approach for determining the true consumer choice of communities, by accurately measuring their ability and willingness to finance onchocerciasis control is needed to :-

1. Be used as an objective rapid assessment method by donor agencies in identifying able and willing communities.

2. Be used by the NOCP (that has community involvement as one of its plans) in designing appropriate community financing schemes that will be successful.

The approach should be a simple operational tool that could easily be used by non-experts at the national and community level.

1.4 Objectives

This research will therefore attempt to answer the following three questions:

1. Under what conditions will households living in a community be able and willing to finance the control of their endemic disease, either individually or collectively?
2. How can this information be determined simply and economically by local people?
3. How can this knowledge be used in designing an approach for determining the ability and willingness of community members to finance the control of onchocerciasis using ivermectin?

The answers to these questions will be modelled in order to design a practical and easily understood approach. There is the need to build such a simple model so that it would be utilized to solve real life problems.

In their analysis of the economic problem of parasite control programmes, Kaewsonthi and Harding (1986) noted that the aspirations of economists to provide information which will contribute to decision making concerning the introduction, continuation and operation of parasite disease control programmes are seldom met. Five factors which affect this situation were examined. However, a very important factor was omitted in the paper. This factor is the usual practice of economists to develop complicated and sometimes abstract models which the non-expert policy makers for whom they are intended find impossible to understand, and therefore never use such tools. Gunning-Schepers and others (1990) developed a model to estimate the health benefits of prevention. The model was simplified by incorporating the somewhat simplistic view of policy makers into traditional measures of effect, in order to serve as an effective tool for policy makers. It was because of this simplification that the model is accessible to non-expert users, mostly in community health centers. Therefore in this vein, the study objectives are the following:

General objective

To design a simple operational approach for determining the ability and willingness of communities to finance the control of onchocerciasis using ivermectin.

Specific objectives

1. To model the possible factors that affect households' ability and willingness to finance (pay or contribute) onchocerciasis control using ivermectin both in the static and dynamic conditions.
2. To design a multi-dimensional index that will be used as a criteria for assessing these factors generated.
3. To design how the interpretation of the results could be translated into a community financing scheme both in static and dynamic conditions.