'The Development of Basic Health Services in Papua New Guinea, with particular reference to the Southern Highlands Province.'

by

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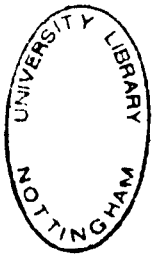

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ACKNOWLEDGEMENTS

I have been concerned with issues of social policy in developing countries since 1972; this study therefore owes a great deal to the very many people with whom I have shared ideas since then. For discussion of many of the issues raised here I am grateful to colleagues and students at Makerere University, Uganda, the University of Dar es Salaam and the University of Nottingham. At Nottingham I have been fortunate that Professor David Marsh encouraged the development of my interest in social policy and under-development and facilitated the leave of absence which enabled me to spend two years at the University of Papua New Guinea. I am also grateful to Professor Arthur Willcocks for his advice and assistance.

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I am grateful to Kathy Green who typed, and retyped, the thesis with characteristic skill and patience. Mr.Lewis, Senior Cartographer, Department of Geography drew the maps for Chapter 7.

My family has borne a great deal of the burden of this study ; a consuming interest often consumes far more than it should.

Stewart MacPherson.

C O N T E N T S

List of Tables

List of Figures

ABSTRACT

The development of basic health services in Papua New Guinea, with particular reference to the Southern Highlands Province.

The process of underdevelopment in Papua New Guinea is bringing rapid change for the mass of people as more areas are incorporated into the export oriented cash economy, with disruption of social and economic formations, growing inequality and deepening dependency.

This is despite national objectives emphasising more equal development based on the needs of the rural majority. Health services have grown within the framework of underdevelopment and are characterised by an imported clinical model, hospital bias and inequality. The 1974-1978 health plan attempted, unsuccessfully, to reverse trends to urban, curative services and to develop basic rural services using the aid post system in particular. Aid post provision began after the second world war but has, until recently, suffered from relative neglect.

Attempts to plan more effectively, and recent decentralisation, may provide the basis for the development of services following a primary health care approach. However, redistribution of resources to the rural majority remains problematic.

The Southern Highlands province ranks lowest on most health indicators; as in the majority of rural areas morbidity and mortality patterns indicate the need for primary health care.

The distribution and utilisation of health services within the province reflect the national situation, with emphasis on hospital and health centre treatment. Provincial objectives include spatial redistribution of health facilities to improve access and the pursuit of primary health care, focussed on aid posts. Among a number of problems found with aid posts, the orientation and attitudes of orderlies may be inimical to the community development approach of primary health care. The massive, externally-funded, economic development project in the province epitomises the dilemmas of change in the country. For health, as for so much in contemporary Papua New Guinea, the question is whether change will bring development or the extension of underdevelopment.

CHAPTER 1 INTRODUCTION

This chapter describes first the background and aims of this study and discusses its relationship to the study of social policy issues in Papua New Guinea. This is followed by a brief outline of the remaining chapters.

Background and Aims

The study began when the author was appointed, in 1977, to the Department of Anthropology, Sociology and Social Work at the University of Papua New Guinea, to teach social policy and community development. Experience, since 1970, of university teaching and research in social administration, both in East Africa and the United Kingdom had shown the need to analyse social policy in the context of social, economic, and political forces. In relation to health in developing countries, a considerable literature, particularly that from East Africa, had demonstrated the crucial relationship between underdevelopment and the pattern of health services.(1)

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(1) Of great general influence, and particular influence on the author were King(1966) and Bryant(1969) which demonstrated the failure of health systems in developing countries to meet the needs of the people. A little later, experience in East Africa exposed the author to literature concerned with that area, and in particular with Tanzania. Segall(1972), Gish(1975), Rodney(1972) and Raikes(1973) are examples which again have had major influence. Beyond the East African context, Frankenberg and Leeson(1973) and Navarro(1974) enlarged the discussion of health and underdevelopment. More recently, a growing body of literature has pursued this issue. For details of a good deal of it see Heller and Elliott(1977),Turshen(1977) and Doyal and Pennell(1979).

Shortly after arriving in Papua New Guinea, the author was requested by the National Planning Office to contribute to discussions of the integrated development project in the Southern Highlands Province. A visit was made to that province in September,1977 during which meetings were held with both the Provincial Health Department and a visiting team from World Bank. As a result, it was decided to concentrate attention on basic health services in the province, and in particular on aid post orderlies. At that time there was very little coherent information on the health situation in the province, even within the province itself. A successful application for funds was made to the University of Papua New Guinea for field research, which began in December 1977.(2)

At the same time, an analysis of national health policies was undertaken ; since the publication of the National Health Plan in 1974, there had been no published account of national trends in the distribution of expenditure and resources. A preliminary assessment was produced in April,1978.(MacPherson,1978) An example of the existing literature may be seen in Malcolm's review of the health care system(1978), which, although detailed and comprehensive, is restricted to analysis of the situation prior to 1974, as discussed in the National Health Plan itself. As a major theme of the present study is rural health development must be seen in the context of national development, some examination of national policies, programmes and planning is seen as essential.

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(2) See Appendix for details.

From late 1977 until mid - 1979, studies in Papua New Guinea were continued on three levels, national policy, provincial policy and at the local level, of the work of aid post orderlies. At the same time, the author was teaching at the University of Papua New Guinea ; this considerably affected both the nature of the studies done and the manner in which the results are presented. The latter is discussed further below, the former needs comment here. The first, and most obvious, effect of full-time teaching is the constraint this places on time available for research, particularly where that research is for the most part in another part of a country where travel is difficult and expensive. Thanks to the generosity of the University of Papua New Guinea, and the Southern Highlands provincial administration, a number of visits were made to the province, but it was not possible to engage in research which would demand a long, continuous period in the field. Second, the author was always conscious of the needs of students for material on contemporary issues in social policy. There was, as in many other developing countries, a paucity of such material. Papua New Guinea is changing very fast ; the students at the University of Papua New Guinea quite properly demand material which will enable them both to understand and, hopefully, to take control of that change. The approach taken in this study reflects both a conviction that health can only be understood in this wider context and also that Papua New Guinea should take control of the changes which are taking place. Both by design and circumstance the present study takes a macroscopic rather than a microscopic approach.

The aims of the study may be summarised as:

1. to present an account of basic health services in Papua New Guinea which will be of some value to Papua New Guineans.

2. to examine basic health services in the context of development and underdevelopment.

3. to examine the role of the aid post orderly in relation to the development of a primary health care approach.

4. to illustrate the dilemmas of rural health development in the Southern Highlands Province, which is attempting rapid socio-economic development through an externally-funded 'integrated development project'.

In pursuit of these aims, the study concentrates on formal health services, and primarily those operated by government. The role of traditional medicine, and in particular its integration with formal services, is of vital importance. However, it is not possible to deal with this within the constraints of the present study.(3)

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(3) For general discussion of the issues involved in the relationship between traditional and modern health systems see Maclean(1974), Dunlop (1975), New(1977) and World Health Organisation (1978). For Papua New Guinea see van Amelsvoort(1964), Watson(1968),Pulsford and Cawte(1972), Zigas(1973) and Lewis(1975). Other studies of traditional healers, in specific areas of the country, may be found in Glick(1963), Brandewie(1973),Riley(1975) and Johannes(1976). Some work has been done on traditional medicines in Papua New Guinea, but there has been no attempt to date to implement the National Health Plan objective of systematically incorporating traditional cures wherever possible. See Stopp(1963), Holdsworth(1975A,1975B,1978)

Similarly, the present study does not examine in detail the operation of other basic health care services than the aid posts. Maternal child health services are a major feature of rural health care not examined here.(4) Finally,although it will be stressed that a primary health approach demands a comprehensive health effort involving treatment, prevention and promotive health action, this study does not deal with nutrition, environmental health or water supply in any detail.(5)

Social Research and Health in Papua New Guinea

Papua New Guinea has long been the source of social research, and until recently, almost entirely by foreigners. (Morauta,1979)In anthropology, studies from Papua New Guinea

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(4) For discussion of these services and their relationship, in Papua New Guinea, to other parts of the health service see Binns(1971),Biddulph (1972), Radford(1972,1978),Calvert(1974),Papua New Guinea,Department of Public Health,(1974) and Malcolm(1978).

(5) Although nutritional problems have been recognised for some considerable time(Hipsley and Clements, 1950), little effort was made to combat them comprehensively until the mid-1970s. For discussion of the issues see Vernon Bailey(1973), Radford(1973), Papua New Guinea Department of Public Health(1975) and Lambert(1979).

For a thorough review of environmental health issues related to water supply and waste disposal see Feachem(1973). For discussion of the problems of rural waste disposal and sanitation see Frankel (1975).

have a major place in the international literature. However, despite the volume of anthropological work in Papua New Guinea, very little has been in the field of health services.(6) There have been some studies of the social and cultural aspects of health but for a number of these, such concerns were essentially subsidiary elements of ethnographic studies of particular 'tribal societies'. (Schofield and Parkinson,1963;Stanhope,1968;Schiefflin, 1976) Others have been centrally concerned with traditional beliefs related to health but had little interest in contemporary issues of health development. (Scheifenhoevel,1971; Nelson,1971; Johannes,1976). Those which have attempted to use anthropological methods to inform understanding of such

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(6) In the field of medical research, a great deal of work has been done, much of it associated with the Institute of Medical Research(formerly the Institute of Human Biology) For a comprehensive bibliography see Hornabrook and Skeldon(1977). Malcolm's study of the growth and development in the Bundi is an example of detailed medical ethnography. Perhaps the best known series of studies is that of Kuru ; a combination of social anthropology, epidemiology and clinical medicine has led to an explanation of the aetiology of this hitherto unknown disease. (Hornabrook,1975) It is,however, only recently that the Institute of Medical Research has become concerned with contemporary issues of health development.

issues are relatively few, and recent. (Lewis,1975; Frankel,1978; Welsch,1978)

In recent years, considerable criticism has been levelled at foreign anthropologists within Papua New Guinea, much of it from Papua New Guineans. In 1978 a new policy on researchers was proposed(Institute of Applied Social and Economic Research,1978). In the discussions which took place, it was clear that many of those present found previous anthropological research to be largely irrelevant to contemporary concerns, damaging in its theoretical orientations, and inaccessible to the people of Papua New Guinea. These criticisms were made of much social research by foreigners but anthropology was subject to particular criticism; because of that this situation will soon change, as more Papua New Guineans undertake studies of their own society.

Organisation of the study

In this study, issues in the development of basic health services are examined in the context of the country's development and underdevelopment. Development and underdevelopment are concerned with change ; Papua New Guinea demonstrates the impact of that change in quite dramatic ways. The Southern Highlands, as one of the least developed areas of the country, is facing, with the World Bank - funded integrated development project, a period of rapid,and major, economic and social change. The successful implementation of primary health care policies in Papua New Guinea is affected by forces both within the health system itself

and the society of which it is a part. This chapter has indicated the orientation and aims of this study as background to the discussion which follows.

In Chapter 2, the nature of the health problem in developing countries will be outlined and the general pattern of health services discussed. In particular, the relatively recent emergence of the 'primary health care' approach will be examined in relation to changes in the dominant views of 'development'. It will be suggested that the trend to primary health care, culminating in the Alma-Ata Conference in 1978(World Health Organisation,1978B), was in large part a response to the inequality and inappropriateness of health systems in the non-socialist countries of the third world. The primary health care approach will be seen to focus attention on comprehensive, community-level,health action with emphasis on community organisation and the role of basic level health workers.

Chapter 3 will outline some of the principal features of Papua New Guinea. As with many other third world countries, the boundaries of independent Papua New Guinea are artificial; within the country there are major problems of communication and uneven development, arising in part from the topography and patterns of population distribution. A brief discussion of some of the major features of the social systems in the country will indicate the complexity of the contemporary conjunction of traditional social systems with those which are the product of relatively recent social change. Here, attention will be paid to urbanisation trends and the nature

of class formation. Some aspects of the demography of Papua New Guinea will also be dealt with, with particular emphasis on how these affect, and are affected by, changes in health.

A major theme of this study is the relationship between health and development ; Chapter 4 will discuss the Papua New Guinean economy and the development strategy which has been evolved. Reference will be made here to issues of planning; the introduction of the National Public Expenditure Plan will be considered as part of the attempt to ensure that development matches more closely stated national objectives. Chapters 3 and 4 together will provide the context for the discussion of health services.

Chapter 5 will outline the nature of the health problem in the country and will trace the development of health policy. Given the relatively recent attainment of political independence, the impact of colonial policies and programmes is great. This chapter will discuss policies before and after independence, considering in particular the degree to which the objectives of the National Health Plan 1974-78 were achieved in practice.

Chapter 6 will be concerned with aid post provision. As in many developing countries, considerable stress has been placed on the role of basic-level health workers in the shift of concern to basic health services and primary health care. Discussion of the history and contemporary situation of aid post orderlies will outline the major issues raised by consideration of this group of health workers. These issues

will be discussed in more detail in later chapters.

Chapters 5 and 6 thus provide the national health context within which the Southern Highlands province will be discussed.

Chapter 7 will give a profile of the province, with emphasis on those features which bear most directly on health and health services. As at the national level, rapid economic and social change will be discussed; the very recent attainment of provincial government and the impact of the World Bank - funded 'integrated development project' make the province of vital interest as an example of this approach to rural development.

Within the framework of present conditions and proposed change, Chapters 8 and 9 will deal with the health status and health facilities of the province. Trends in provincial health policy will be examined, with particular reference to aid posts in the context of overall provincial development plans.

Internationally, nationally and provincially the importance of basic level health workers is emphasised. Chapter 10 will contain the results of a survey of aid post orderlies in the province; these will indicate the characteristics of the orderlies and their attitudes and opinions regarding their work and the people they serve.

These results are then considered, in Chapter 11, in a general discussion of the problems and issues of basic health services development in Papua New Guinea; this will

draw together evidence of national health policies and programmes in the context of Papua New Guinean development and underdevelopment, attempts at integrated development at the provincial level, and the issues raised by the study of aid post orderlies, who are vital to the implementation of a primary health care approach. In this section reference will be made to similar work done elsewhere and in particular to two studies, neither of which were available to the author when this study began.(7)

The appendix outlines the methods used in the study, and suggests some areas for further research.

The bibliography is of works cited in the text.

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(7) van Etten's study of Tanzania(1976), did not come to the author's attention until early in 1978 and was not seen until much later in that year. The IDS Health Group study of Ghana(1978) was not seen until late in 1978.

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CHAPTER 2

HEALTH CONDITIONS AND HEALTH POLICIES IN DEVELOPING COUNTRIES

This chapter outlines the main features of the health problems in developing countries and recent developments in policies to deal with those problems. The emergence of the 'primary health care' approach is discussed in relation to more general issues of development.

Health Conditions in Developing Countries

In the 'developed' regions, life expectancy at birth is over 70 years ; in those countries classified by the World Bank as 'developing' it is about 53 years. (World Bank,1979) At this most general level there are glaring contrasts between rich and poor countries, and the rich and poor within those countries. Although life expectancy in the poorer countries increased dramatically between the 1940s and the 1970s, this trend has been slowing since the late 1960s. (World Bank,1980) Furthermore, the available evidence suggests that:

> ".....unemployment,underemployment,malnutrition, bad housing, an unhealthy environment, and lack of minimum education persist on an enormous scale after a period of some 30 years during which planning for development has become increasingly accepted. While the expectation of life in developing countries has improved considerably over this period, there is little other evidence that the basic needs of the poor are being met to any greater extent than they were 30 years ago".
>
> (Abel Smith and Leiserson,1978: p.18)

Despite a dramatic lowering of infant mortality rates, it remains the case that the low life expectancy in developing countries is largely due to the death of children, and particularly young children. Michanek (1975) uses the term 'the passing generation' to emphasise the scale of death among young children in the developing countries. In these countries children between the ages of one and five years are twelve to fifteen times more likely to die than children born in developed countries. (World Bank,1980:p.10)

For those surviving beyond five years old, life expectancy is only six to eight years less than in developed countries, but morbidity rates are high ; there is widespread suffering from non-fatal but frequently debilitating illness and disease . Data on health conditions are available for only a very small proportion of the populations of developing countries and are generally of dubious reliability. (Benyoussef and Christian,1977; Gish,1977; Abel-Smith and Leiserson,1978;)

Relatively little information has been collected on the impact of disease on economic and social activities (Sorkin,1976; Turshen,1977A) and what there is must,given the combination of conceptual and practical difficulties involved, be treated cautiously. (Jazairi,1976) A crude indication of the impact of ill-health is offered by the World Bank:

> "The few detailed studies that are available suggest that illness disrupts normal activities for roughly one-tenth of people's time in most developing countries. Many of the illnesses are intermittent with recurrent acute episodes; these illnesses disrupt economic activity, often at critical times, such as the planting and harvesting seasons

> in the case of malaria. Chronic and debilitating diseases impair people's ability to concentrate, students' ability to learn, and adults' productivity".
>
> (World Bank, 1980: p.11)

It has long been recognised that the diseases of the developing countries are the diseases of poverty ; poor environmental conditions, lack of clean water, inadequate nutrition and rapid population growth allow the most widespread diseases to flourish. (King,1966;Bryant,1969; Gish,1977)

The commonest diseases in developing countries are those transmitted by human faeces; the intestinal parasitic and infectious diarrhoeal diseases, but also poliomyelitis,, typhoid and cholera. (Van Zijl,1966) Among children, severe diarrhoeal disease is frequently fatal ; alone and in combination with other infections.

Intestinal parasites are frequently chronic and debilitating rather than causes of acute illness or death. Massive infestations may result in a loss of thirty percent of the nutritional value of ingested food. (George,1976) The incidence of intestinal parasites is often very high in developing countries:

> "WHO estimates that in 1971 there were 650 million people in the world with ascariasis, 450 million people with ancylostomiasis,350 million people with amoebiasis, and 350 million people with trichuriasis.....A World Bank case study of the labour force engaged in Civil Construction at three sites in West Java, Indonesia,found 85 percent infected with hookworm".
> (World Bank,1980:p.13)

It has been estimated that a quarter of the world's population is infested with roundworms ; studies in many countries have found infection rates in excess of ninety percent, particularly among young children. (Van Zijl,1966, Feachem,et.al.,1977)

The second major group of diseases are those spread by airborne transmission ; this includes pneumonia, influenza, bronchitis, measles, whooping cough, meningitis, diptheria, tuberculosis, and chicken pox. The eradication of small-pox from this group has been achieved during the 1970s. (World Health Organisation,1979)

Malnutrition may appear less often in official statistics as the 'primary cause of death', but has been identified as the "biggest single contributor to child mortality in developing countries". (Food and Agricultural Organisation,1970: p.7.) The impact of inadequate nutrition on young children is massive ; very many of the deaths from disease are of children weakened by malnutrition, nutritional deficiencies are the source of blindness, physical and intellectual impairment and disease. (Kraut and Cremer,1971; Puffer and Serano,1973; Transnational Institute,1974; George,1976; Dumont and Cohen,1980)

It is accepted that the health conditions of the poor in developing countries are basically similar everywhere in the world:

> "Their core disease pattern consists of the faecally related and air-borne diseases and malnutrition. These three disease groups account for the majority of deaths among the poorest people in developing countries. Malnutrition is the primary cause of death among children in the developing world and also a major contributor to the virulence of infectious diseases by impairing normal body responses to the disease, thereby reducing immunity levels".
>
> (Benyoussef and Christian, 1977 : p.402)

These then are the conditions common throughout the developing countries; in addition there are major health problems which vary considerably in their impact. Among the diseases which are related to particular geographical areas or particular life-styles the water borne diseases are the most important. (Feachem,et.al. 1977). Diseases transmitted by direct contact, such as leprosy and the venereal diseases are major problems in particular areas although of relatively minor significance in overall morbidity and mortality. In many parts of the world, however, rapid social change and especially population movement with urbanisation has brought increasing levels of sexually-transmitted disease. (World Health Organisation, 1975A.)

Similarly, the vector borne diseases are less widespread and contribute less to overall figures than the three disease groups discussed earlier. However, they have a devastating impact in affected areas and their incidence has been increasing in recent years. Sleeping sickness(trypanosomiasis), spread through Africa as the movement of people was stimulated by colonialism. (Hughes and Hunter, 1970) By the 1950s the

disease was being brought under control in most areas ; since the 1960s it has again become a serious problem.

Bilharzia(schistosomiasis), is a debilitating disease transmitted via water snails. The vector needs areas of slow-moving water ; the disease is now spreading rapidly with the development of irrigated agriculture and hydro electricity. (Choudrey,1975)

Malaria is the most widespread of the vector-borne diseases; World Health Organisation estimates are that about 850 million people live in areas where malaria continues to be transmitted despite activities to control it. An additional 345 million people reside in areas with little or no active malaria control efforts. (World Health Organisation,1976) There was some success in malaria eradication during the 1960s (Weller,1974), but more recently incidence has increased dramatically. (Cleaver,1977) The number of new malaria cases increased by over 230 per cent between 1972 and 1976. (World Bank, 1980)

Although life expectancy has been increasing, and mortality rates have fallen,

> "Throughout the world, for lack of even the simplest measures of health care, vast numbers of people are dying of preventable and curable diseases, often associated with malnutrition, or survive with impaired bodies and intellects."
>
> (Djukanovic and Mach,1975)

Furthermore, evidence of mortality even if reliable, tells us very little about the extent of illness, and even less about the health of populations. The point was powerfully made by Myrdal:

> "Mortality data alone do not tell us much about the frequency,duration, and after-effects even of diseases that are usually fatal. They tell us next to nothing about many other important health deficiencies: physical infirmities like blindness, incipient illnesses, and more generally, physical and mental weakness caused by malnutrition, intestinal worms, and other infestations and diseases that are usually not fatal in themselves. It is conceivable that a large part of a population may be diseased, or at least lacking in normal vigour, all or most of the time, even though rates of mortality are decreasing and life expectancy is increasing. It is even conceivable that people live longer only to suffer debilitating conditions of ill health to a greater extent than before".
>
> (Myrdal,1968 : Volume 3, p.1554)

The patterns of both mortality and morbidity in developing countries are known; both are overwhelmingly the result of malnutrition, gastro-intestinal diseases, respiratory diseases and vector borne diseases. The knowledge needed to deal with these is widely available ; "the health problems of developing countries can be controlled or treated with presently known technologies". (World Bank,1980 : p.16)

It is against this background that health policies in developing countries must be examined.

Health Policies in Developing Countries - the emergence of Primary Health Care

Health services in the developing countries, the majority of which are former colonial territories, must be seen as reflecting dominant societal relationships. (Segall,1972; Sharpston,1973; Navarro,1974; Frankenberg,1974; Turshen, 1977A; Heller and Elliott,1977; Doyal and Pennell,1979; Gish,1979)

Contemporary patterns of underdevelopment have their roots in colonialism ; underdeveloped health services have grown out of colonial medical care systems. The metropolitan powers introduced their own health systems into their overseas territories at an early stage of colonial penetration. In many cases, this period was dominated by the military and the missions.(1) As Gish states:

> "Typically the pattern of "modern" medical care during the colonial era had three major components: the urban hospital, the rural dispensary - often Christian church related, and the hygiene or public health element. In essence, this remains the pattern in the Third World right up to the present."
>
> (1979:p.205)

Colonial administration hospitals were built initially

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(1) see Chapter 5 for a discussion of this in Papua New Guinea. For East Africa see Beck,1970, and for Tanzania, Van Etten,1976, and Turshen, 1977A.

to meet the needs of 'Europeans' and their families; they might have some minor provision for 'non-European' inpatient care, but this was more likely to be provided by mission hospitals. (Beck,1970; Schram,1971). Characteristically, hospital provision was in the major centres of European settlement and economic activity. (Benyoussef,1977; Doherty,1973; Gershenberg,1970; Gish,1973).

Rural dispensaries, where these existed, were more commonly run by missions and other voluntary organisations; they were essentially curative institutions, dispensing drugs to outpatients, with very limited inpatient facilities. (Titmuss,et.al.,1964)

In terms of public health, the essential objective of colonial policy was to provide a 'safer' environment for the Europeans, both in residential areas and areas of economic activity such as estates and plantations. (Brown,1976; Doyal and Pennell, 1979.)

To the extent that colonial services were extended to the indigenous population their distribution was again generally determined by patterns of economic activity, notably in primary export production. As for their style, the dominant theme was most often the desire to spread the scientific and orderly methods of Western scientific medicine to peoples considered to be 'backward' and lacking in awareness of 'proper' medical practice. (Rodney,1974):

> "It was generally assumed that the administered people would prosper to the degree they became like those who administered them".
>
> (Gish,1979: p.205)

Turshen (1977B) argues that the spread of the clinical medical model was inextricably linked to the spread of the capitalist mode of production; the values and underlying paradigm of the clinical model are connected to the forms of economic organisation that characterise capitalist social life. Many of those who have attempted to analyse the development of health systems in developing countries, without perhaps agreeing with all the views represented by Turshen, accept the importance of the proposition that:

> ".....medicine's failure to develop a positive definition of health results from the individualistic and ideological bias that pervades medical research and medical practice, structures relations between practitioners and patients, shapes the approaches selected for treatment(e.g. chemical or surgical intervention) and the technology employed, and rejects the initiation of collective social action by communities".
>
> (Turshen,1977B: p.49)

The legacy of colonialism was not simply inadequate services, maldistributed and generally irrelevant to the needs of the majority, but an approach to health itself which was to a very great extent inimical to the development of an appropriate health system.

Political independence, gained by most of the colonies in the twenty years after the Second World War, in general made little difference to health policies. As Leys suggests, the change was, most often:

> ".....the replacement of direct colonial administration by 'independent' governments representing local strata and classes with an interest in sustaining the colonial economic relationships. To the extent that the state in the metropolitan countries was a 'committee for managing the common affairs of the whole bourgeoisie', the state which emerged in the periphery country was a sort of sub-committee".
>
> (Leys, 1975: pp.9-10)

The nature and effects of neo-colonialism have been extensively documented; studies of neo-colonialism and health have stressed both the continuing injustice of health care systems in the developing countries and the crucial interrelationships between those systems and those of the former colonial powers. (Gish,1971; Lall and Bibile,1977; Doyal and Pennell,1979)

Most newly independent states attempted expansion of their health provision, but essentially in the form developed under colonialism. Despite stated objectives to the contrary, in most countries post-independence health allocations were biased as much, or more, in the direction of emerging elite and urban groups than had been the case before political independence. (Cliffe,1973; Lipton,1977; Mburu,1979)

The rhetoric of post-independence health plans was almost always contradicted by actual expenditures and programmes; "the rhetoric emphasized preventive and rural priorities at the same time that expenditures were over-

whelmingly curative and urban". (Gish,1979,p.206)

Although the fundamental nature of health provision changed little there was considerable expansion; most notably in the rapid growth of hospital provision and the drive to produce medical graduates. This provision was almost always in urban areas and widened the gulf between rural and urban populations.

Although in general rural services expanded less than urban, there were some significant developments; in particular the rural health centre concept was developed, especially in East Africa, and elaborated in King's widely influential book. (King,1966)

There can be little doubt that King's work had considerable impact, not just in Africa, but throughout the developing countries.(2) In contrast with many developing countries however, the countries of East Africa relied heavily on the 'medical assistant' at the rural health centres. (Fendall,1963; 1965; 1968) However, the emphasis in Fendall's concept of medical auxiliaries was very much on relatively highly trained health workers working in health systems which still had the medical doctor as the lynch pin of a strictly hierarchical system. (Fendall,1972).

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(2) see Chapter 5 for reference to this in relation to the development of health services in Papua New Guinea.

Despite such developments and the more profound changes which were beginning to take place in certain newly independent countries, for example Tanzania (Kilama, et.al,1974; Gish, 1975) most countries continued to emphasise 'growth' ; health policies matched the dominant economic ideology.

It was not until the 1970s that emphasis on 'growth' and 'gross national product' as the measures of 'development' began to give way to alternative views informed by the realities of conditions for the mass of people in developing countries. Seers, whose contribution to this shift was of major importance, suggested that:

> "Development means creating the conditions for the realisation of human. Its evaluation must therefore take into account three linked criteria : whether there has been a reduction in (i) poverty;(ii unemployment; (iii)inequality. G.N.P. can grow rapidly without any improvement on these criteria; so development must be measured more directly".
>
> (Seers,1972: p.21)

At the beginning of the 1970s those arguing for such a conception of development were a minority, for example President Nyerere of Tanzania, whose lucid and compelling writing on his country's attempt to develop on the basis of equality and the needs of the mass of the rural population was profoundly influential. (Nyerere 1966; 1968;1973) By the end of the 1970s it is possible to say, albeit with some qualifications, that:

> "The emergence of a new majority view of development focused upon the needs of the most impoverished, including perhaps especially their nutritional and health requirements, has more or less "swept the development boards".
>
> (Gish,1979: p.208)

International concern with health in developing countries began to reflect this 'new' view of development; there was more attention paid to the problems and issues of basic health services in rural areas. (World Health Organisation, 1973A; 1973B; 1974) The principles of the primary health approach care were enunciated by the Director-General of the World Health Organisation in 1975; these have been the focus of attention by the international agencies ever since. (World Health Organisation; 1975; 1979)

The major background study for the World Health Organisation primary health care programme resulted from a joint WHO/ UNICEF effort. (Djukanovic and Mach,1975) This study was unequivocal in its criticism of existing approaches to health policy and the need for a shift of emphasis to basic health services:

> "Despite great efforts by government and international organisations, the basic health needs of vast numbers of the world's people remain unsatisfied. In many countries less than 15% of the rural population and other unprivileged groups have access to health services.....The strategy adopted....by many developing countries has been modelled on that of the industrialised countries, but as a strategy it has been a failure.....In sum, history and experience show than conventional health services, organised along "Western" or other centralised lines, are unlikely to expand to meet the basic health needs of all people.....Clearly the time has come to take

> a fresh look at the world's priority health problems and at alternative approaches to their solution".
>
> (Djukanovic and Mach,1975: p.7)

Their conclusions, based on an analysis of the failure of 'conventional' health services and the example of countries with successful, or potentially successful, basic health programmes emphasised the need for clear national health policies, the relationship between health and development strategies, the need for massive redistribution of resources and, fundamentally, the reorientation of health systems around community-based primary health workers. They were aware of the magnitude of their proposals:

> "A firm national policy of providing health care for the underprivileged will involve a virtual revolution in most health service systems. It will bring about changes in the distribution of power, in the pattern of political decision-making, in the attitude and commitment of the health professionals and administrators, ministries of health and universities, and in people's awareness of what they are entitled to.
>
> (Djukanovic and Mach, 1975: pp.104-5)

Although several types of primary health worker were identified all were seen as needing 'a wider social outlook'. Whatever the specific form of health service, it was argued that:

> "The basis and strength of such services lie in a cadre of suitably trained primary health workers chosen by the people from among themselves and controlled by them, rather than in a reluctant, alienated , frustrated group

> of bureaucrats "parachuted" into the community. The entire health service system will need to be mobilized to strengthen and support these primary health workers.....
>
> (Djukanovic and Mach, 1975: p.105)

From their examination of country case studies, Djukanovic and Mach argued that whereas the existence of appropriate national development goals and overall development strategies facilitated the adoption of such an approach to health, some significant advances were possible on a regional or sectional basis. However, although they argued that the systems they studied could be adapted for application in 'many political, social, economic and environmental situations'(1975:p.104), quite clearly the most successful programmes in terms of the development of equitable national systems of health were in those countries where health had been integrated into a general development programme. Of the countries discussed by Djukanovic and Mach, Cuba, China and Tanzania were those which provided the most dramatic results from the application of the 'primary health care approach'.

The Djukanovic and Mach study very clearly established the primary health worker as the foundation of health systems in developing countries. In doing so, major emphasis was put on the involvement of the community which the health worker served. This was examined in a further World Health Organisation publication which suggested that basic health should be 'health by the people'. (Newell, 1975). Again, a series of case studies was used as the

basis of an exploration of the issues, problems and possibilities of community organisation for health.

As Benyoussef and Christian note, 'health by the people' is both a philosophical and a pragmatic idea. (1977: p.401) Philosophically it may be believed that organised communities, representing the basic unit of a functioning democracy, should be the starting-point of health services. On a practical level, since resources are almost invariably so limited to consider any other course of action community organisation has to be the starting-point. Newell's study was concerned with successful community organisation for health and although drawing examples from countries with very different social, economic and political characteristics he was able to identify common themes. The first was again the crucial importance of the community - based primary health worker:

> "Author after author decribes the primary health worker as one of the keys to success, not only on the grounds of cheapness but because he or she is accepted and can deal with many of the local problems better than anyone has done before and because he or she is <u>there</u>".
>
> (Newell,1975: p.193,emphasis in original)

In all the examples presented by Newell the new systems of primary health care were either linked with pre-existing indigenous health systems or attempted to function in ways which were qualitatively similar to such systems:

> "In this sense the new did not win over or destroy the old but achieved an adjustment that had some new qualities and techniques and provided a link between the present and the past".
>
> (Newell,1975: p.193)

Closely related to this is the further common feature that in no case was there a separation of promotional, preventive and curative health action at the primary health care level. As Newell states, "the arguments for linking curative, promotive and preventive actions appears to be overwhelming". (1975: p.195). However, the key similarity between the successful examples discussed lay in community organisation:

> "Each area or country started with the formation, reinforcement or recognition of a local community organisation. This appeared to have five relevant functions. It laid down the priorities; it organised community action for problems that could not be resolved by individuals(e.g. water supply or basic sanitation); it "controlled" the primary health care service by selecting, appointing or legitimizing "the primary health worker; it assisted in financing services; and it linked health actions with wider community goals".
>
> (Newell, 1975: p.193)

Successful local community organisation was thus identified as the basis of success in primary health care; however, Newell acknowledges the major dilemmas of a 'community development' approach in widely different developmental contexts. Three types were described; national change (China,Cuba,Tanzania), extensions of the existing system (Iran, Nigeria, Venezuela), and local community development (Guatemala, India, Indonesia). Where there was national

change, considerable advantages could be seen, not least that:

> "Even though these were poor countries, the clear statement of national decision and national will mobilized effort, gave recognition to health as something that was not imprisoned within the sectoral confines of a health ministry, and plucked health out of the directing hands of the health industry.....The biggest benefit of this change appeared to be an increased ability to reorient resources quickly in direct relation to national goals, which in each case underlined the needs of the underserved rural populations".
>
> (Newell,1975: p.199)

In those countries which had extended their existing systems there was a desire to bring services to those presently without them but no assumption that the methods necessary to do this would demand changes in the society as a whole or in the pattern of existing health services:

> "It was even considered possible that the rural primary health care methods adopted might be temporary or interim ones, and that at some future time the country would be served by a single system with characteristics approaching those at present existing in the cities".
>
> (Newell,1975: p.199)

The third group of examples, those dealing with local community development projects, did not involve any changes political or administrative,outside the local area. The projects, although successful in themselves, showed few signs of replication even to neighbouring areas and had not influenced national policies in the countries concerned.

> ".....it could be said that they were designed not to change countries but to solve local problems or to demonstrate new solutions to apparently insoluble situations within countries".
>
> (Newell,1975: p.200)

In view of the widespread adoption of the primary health care approach which has taken place in recent years, Newell's conclusions regarding those countries which had extended existing systems are of importance.(3) Although there were connections with national decisions in these cases, local strengths were less and their main thrust was seen to be more in relation to the health service itself and less towards overall rural development. These projects did not seem to link local community organisation and national change but were seen as solutions in themselves. Insofar as such approaches do not therefore demand significant change outside the health system, it may be, as Newell suggests, that:

> "They would appear to be of relevance to countries with widely differing political systems and to be a step that could be taken to expand a local effort to the provincial and later to the national level. The weaknesses are mainly the dangers of bureaucracy, lack of contact between sectors of government, and the reactionary forces within the health professions that could organise at this level of national endeavour to stop change".
>
> (Newell, 1975: p.201)

Thus, the proponents of primary health care argued that some significant advances could be made, whatever the social context. Benyoussef and Christian express the pragmatic view:

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(3) see Chapter 5 for discussion of Papua New Guinea.

> "Is primary health care the best approach to providing health care to developing countries? It is at least an attempt to provide some health care where none exists now. Present medical care systems are clearly inadequate, so if the choice is between offering primary health care or no health care at all, then the choice is obvious".
>
> (1977: p.407)

Others have placed much greater emphasis on the relationship between developments in health and social, economic and political forces. In particular, it has been argued that if genuine progress towards justice and the strengthening of communities is to be made this can only occur where there is a fundamental shift of power. (Navarro,1972; Rifkin and Kaplinsky,1973; Sidel and Sidel,1974,1977; Feuerstein,1976).

In September 1978, the Alma-Ata International Conference on Primary Health Care, "probably the largest single-theme conference ever held"(Bennett 1979: p.505), clearly established primary health care as the model of health development in majority of developing countries. (WHO/UNICEF,1978; World Health Organisation,1978). The Declaration of Alma-Ata stressed the 'existing gross inequality' in health status, and argued that health should be a main focus of overall social and economic development. The definition of primary health care offered at Alma-Ata is one which many countries have adopted: many more will undoubtedly do so:

> "Primary Health Care:
>
> 1. reflects and evolves from the economic conditions and sociocultural and political characteristics of the country and its communities and is based on the application of the relevant results of social,biomedical and health services research and public health experience;

2.addresses the main health problems in the community, providing promotive, preventive, curative and rehabilitative services accordingly;

3.includes at least: education concerning prevailing health problems and the methods of preventing and controlling them; promotion of food supply and proper nutrition; an adequate supply of safe water and basic sanitation; maternal and child health care, including family planning; immunization against the major infectious diseases; prevention and control of locally endemic diseases; appropriate treatment of common diseases and injuries; and provision of essential drugs;

4.involves, in addition to the health sector, all related sectors and aspects of national and community development, in particular agriculture, animal husbandry, food, industry, education, housing, public works, communications, and other sectors; and demands the coordinated efforts of all those sectors;

5.requires and promotes maximum community and individual self-reliance and participation in the planning,organization, operation and control of primary health care, making fullest use of local, national and other available resources; and to this end develops through appropriate education the ability of communities to participate;

6.should be sustained by integrated,functional and mutually supportive referral systems, leading to the progressive improvement of comprehensive health care for all, and giving priority to those most in need;

7.relies, at local and referral levels, on health workers, including physicians, nurses, midiwves, auxiliaries and community workers as applicable, as well as traditional practitioners as needed, suitably trained socially and technically to work as a health team and to respond to the expressed health needs of the community."

(World Health Organisation,1979: pp.VIII-IX)

Bennett, in a full discussion of the development of the primary health concept, identifies a number of important aspects; although careful to elaborate the deficiencies of existing health system and the obstacles to be overcome, he is essentially optimistic:

"Primary Health Care is the outcome of collective human conscience - a recent awareness that there has been inequality in the distribution of health which is a human right.....Primary Health Care programmes aim at changing this situation and the

> achievement of Health for all by 2,000 has now become a feasible proposition".
>
> (Bennett,1979: p.513)

For the international health agencies, and many others, the primary health care approach is seen to offer a solution to the health problems of the majority of people in developing countries. The extent to which these ideas have come to dominate in recent years may be seen in the significant difference between recent policy statements on health produced by the World Bank.(1975;1980). In marked contrast to the 1975 policy document, that produced in 1980 stressed the role of community-level health workers and announced a major change in policy; the World Bank would begin direct lending for health projects:

> "Technical, social, and economic factors demand that for most of the world, it will be necessary to adopt or extend simplified systems of health care.....Health projects will aim to strengthen the recipient countries' sectoral planning and budgeting capacity, and their primary health care systems".
>
> (World Bank,1980: pp.44,63)

However, optimism is by no means universal; Gish, for example, expresses serious doubts regarding the recent wave of enthusiasm for primary health care:

> "However, as yet the discussion has been marked more by wishful thinking at best and cynicism at worst, than by hard analysis of the issues involved.....the discussion appears to have moved in remarkably short order from almost total rejection of the traditional practitioner, the village health worker or even other types of "medical practitioners" than those with university degrees to idyllic glorification

of these types of cadres".

(Gish,1979: p.209)

As Gish points out, there has been a failure to examine sufficiently the context of health programmes in countries such as Cuba,China and Tanzania. Others have pointed to the impossibility of taking health practice out of its social, economic and political context and attempting to transfer it elsewhere. (Doyal and Pennell,1979) Even those countries where the appropriate conditions for success appear to be more likely have experienced serious difficulties in attempting radical reform of their health systems. In Tanzania for example, despite major advances rural health workers have been found to be careerist, deferential to the established medical hierarchy and unsympathetic to the people among whom they worked. (Raikes,1973; Van Etten,1976)

Gish argues that genuine primary health care will only be extensively developed if there are fundamental reforms of the more conventional health delivery systems. There is, as yet, little evidence of significant shifts in the resource allocations for health in most developing countries despite the espousal of primary health care. (Mburu,1979). To be successful, primary health care cannot be simply a matter of 'projects' grafted onto existing systems; the nature of health systems must be changed. If health systems are so changed, from being inequitably distributed, urban and hospital-oriented, and to being part of a just overall social and economic development,

the evidence is that such a change will demand major social transformation. (Frankenberg and Leeson,1973; Sidel and Sidel,1974; New,1974; Aziz,1978). As Gish states:

> "It must be stressed that the major obstacle to more just and efficient health care systems(whether "by", "for" or "with" the people) are not the usually cited ones of limited resources, poor communications, or lack of technological knowledge and data,but rather social systems that place a low value on the health care needs of the poor."
>
> (1979: p.209)

Summary

'Primary health care' has emerged as the dominant approach to the health problems of developing countries. It has clearly developed out of the realisation that existing health systems had failed the majority of people in developing countries. Concern for basic health needs may be seen as part of a more general trend in perceptions of development; national economic criteria have to some extent been displaced by social and distributional criteria. Alternative approaches to meeting basic health needs have drawn to a considerable extent on the experiences of such countries as Cuba, China and Tanzania; these countries have attempted to achieve massive social transformations in which health is part of overall national change. 'Primary health care' has rapidly emerged as the dominant model for health service development in the 1970s ; the approach focuses on the basic health needs of the majority of people, attempts to integrate promotional, preventive and curative health, stresses the use of low-level manpower and relies heavily on community organisation for health.

Doubts regarding the real long-term success of this approach stem essentially from explanations of the existing patterns of inequality in health conditions and access to health resources. To the extent that these are the product of the 'development of underdevelopment', significant changes in health will depend not simply on health policies but on changes in the pattern of social, economic and political forces in developing countries. From this perspective, improved health is not simply, or even primarily, a matter of medical systems but a much more complex question of the relationship between health and underdevelopment, and the nature of the underdevelopment. As Gish argues:

> "....all activities concerned with health must begin with the specifics of underdevelopment in particular circumstances. Only from this background will it be possible to come to grips with the issues of improved health status as well as more relevant health and medical services in the Third World. As long as it remains essentially impossible to deal seriously with existing social and property relations, so long will it remain impossible to alter significantly the health status of the world's poorest, say, one billion people."
>
> (Gish,1979: p.210)

Remaining chapters consider the development of basic health services in Papua New Guinea in the context of the specific conditions of that country. Within the context of national development the Southern Highlands province is examined as a case-study illustrative of the issues involved in the relationship between health and development and the potential for primary health care. Given the emphasis within the primary health care approach on community-level health workers, particular attention is paid to aid post orderlies,at both the national and provincial level.

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CHAPTER 3 PAPUA NEW GUINEA

The Land

The mainland of Papua New Guinea lies about 100 miles north of the Eastern half of Australia. The mainland lies on the eastern portion of the island of New Guinea; the remainder of the island is the Indonesian province of West Irian.(1) Although 85 per cent of Papua New Guinea's land area is on the mainland, the country also covers about 600 islands.(2) The largest of these are New Britain, New Ireland, and Manus in the Bismarck Archipelago,Bougainville and Buka in the northern Solomons, and the Trobriand,Woodlark, D'Entrecasteaux, and Louisiade island groups to the east of mainland Papua New Guinea. Overall, the country extends nearly 2,100 kilometres from east to west and about 1,300 kilometres from north to south. It's total land area is 462,000 square kilometres - substantially more than that of New Zealand or the Phillipines.

In general the topography of Papua New Guinea is rugged.(3) Both on the mainland and on the islands the land is characterised by steep mountains, some rising over 4,500 metres. There are, in contrast, vast swampy plains in the basins of the great rivers; the Fly and Purari in the west and the Sepik in the north. Of the many major rivers only the Fly and the Sepik are even partially navigable; the rest obstruct rather than aid movement and communication. The central cordillera divides the main

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(1) For a discussion of the relationship between Papua New Guinea of its western neighbour see Sharpe N.1978. The Rule of the Sword. Sydney: Arena.

(2) See Figure 3.1.

(3) For detailed discussion of the landforms of Papua New Guinea see Ryan.M.(ed)1972.Encyclopaedia of Papua and New Guinea.Melbourne: Melbourne University Press.Volume 2,pp.590-604.

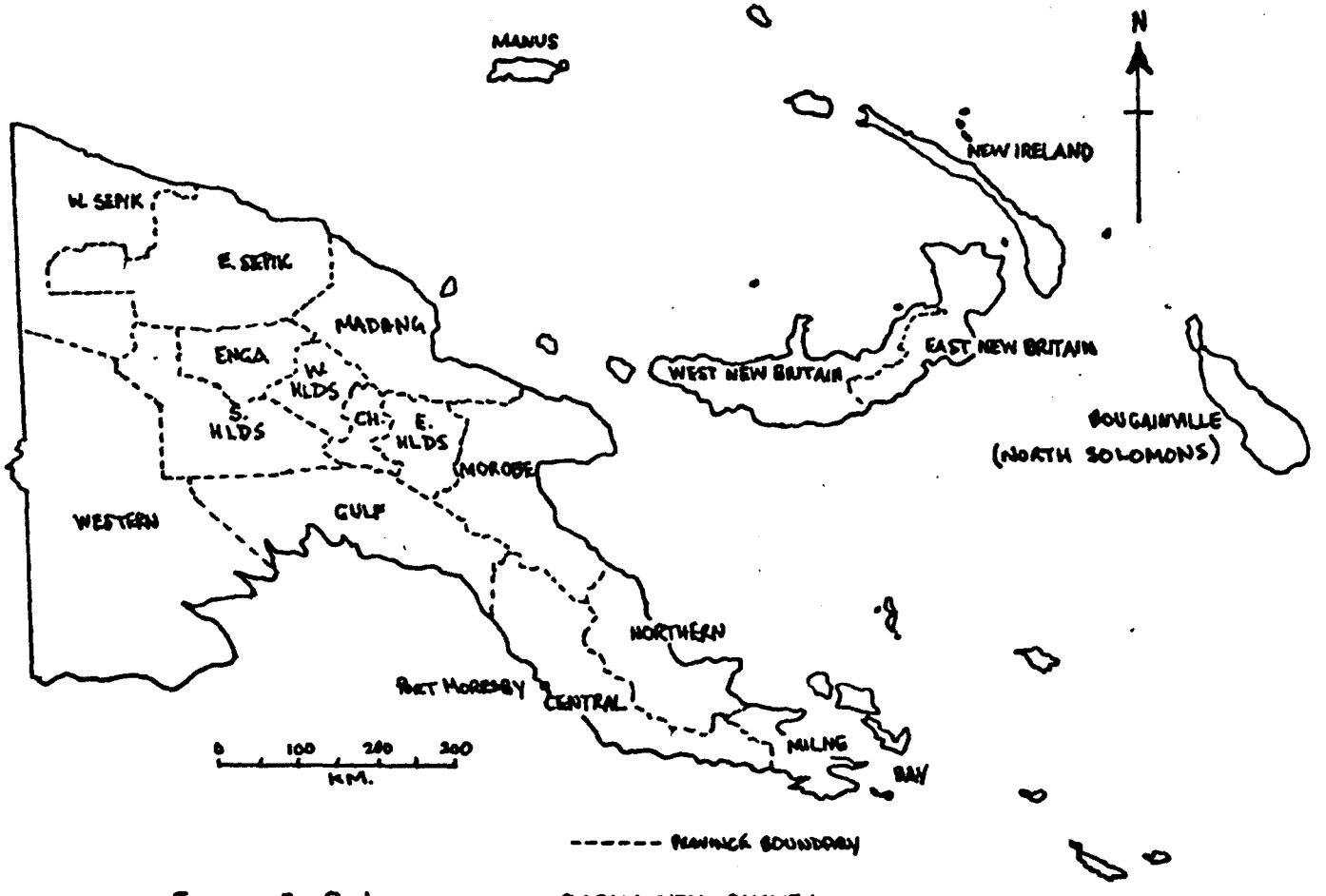

FIGURE 3.1. : PAPUA NEW GUINEA

land and presents a massive barrier to north-south communication.

These topographical barriers are significant in the large degree of economic and cultural fragmentation which has characterised the land area now contained in the independent state of Papua New Guinea. (Chowning,1977)

Transport is a major problem in most parts of the country and there is wide variation in access. The aeroplane was introduced earlier than road transport in many areas and has penetrated more remote areas. Its early introduction was associated with both missionary activity and gold prospecting and air transport remains today the major means for the movement of people and goods, albeit at very high cost.

In areas with access to the sea, there has always been a considerable amount of coastal and inter-island shipping but at present this is significantly undeveloped, with primary emphasis being given to ocean shipping for international trade.(4)

Papua New Guinea is relatively rich in natural resources but an integrated national system of production and distribution is difficult to achieve except at great cost.

There are many regions with good soils and a variety of climatic conditions at different elevations which allow a wide range of agricultural possibilities. (Ryan(ed),1972:pp.10-18)

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(4) For an illuminating example of the crucial importance of transport in coastal areas, and the inadequacy of present facilities see Haiveta.C1979. Water Transport in Gulf Province. Department of Anthropology and Sociology, University of Papua New Guinea.

Subsistence agriculture occupies 90 percent of the cultivated land and engages from 60 to 70 percent of the population. Forms of subsistence production vary and local subsistence economies are increasingly being penetrated by the cash economy where crops are grown for sale rather than consumption. Huge areas of the country are presently uncultivated and forest cover is extensive. There is some debate regarding the extent land remains available for viable subsistence production(Barnett.1976;1977) and the exploitation of timber resources, while proceeding at speed in many areas, is complex and possibly destructive, both socially and economically(D'eath,1979).

The mountainous terrain and heavy rainfall together provide the basis for a huge hydro electricity potential. Again development of this resource has generated fierce debate in some areas.(Purari Action Group,1978)

The mineral resources of Papua New Guinea are also good and a great deal of effort is currently being made to locate and exploit these resources. The country remains a major gold producer despite the decline of that industry and has more recently, with the opening of the large opencast mine on Bougainville, become a major copper producer. Copper now accounts for about half the country's total exports and 20 to 30 percent of it's gross domestic product.

Another major resource, potentially greater than copper, is the fish in the seas around Papua New Guinea. Huge catches are currently taken, but virtually all by foreign companies for processing in the canneries of Japan and the U.S.A. Tinned fish, the most common protein source for a very large, and increasing, number of Papua New Guineans, is all imported.

The People

The population of Papua New Guinea, excluding non-citizens, is growing

at around 3 percent per annum and was estimated at around 3 million for 1978. (P.N.G. Office of Environment and Conservation,1978). The last complete census was in 1971 and was subject to considerable error; the next census will be in 1980.(5) According to the 1971 census figures, less than 6 per cent of the total population were in urban centres with populations in excess of 20,000. Despite some significant changes since 1971, it remains true that the Papua New Guinea population is overwhelmingly a rural population. Having said that, however, it is important to note, as Skeldon does, that we must be careful in our interpretation of these figures:-

> "This percentage [of urban population] is well below equivalent proportions for other developing regions of the world.....these figures tend to reinforce the popular image of Papua New Guinea as one of the last primitive areas of the world. This is not the case. There are few people in the country today, if any, who have not been touched by the banes and benefits of the western, so-called modern, way of life. The commercial economy has made deep inroads into the subsistence agriculture of every province; and reflecting and reinforcing these changes has been the growth of a network of urban places, small by world standards but nevertheless having a profound impact on the social and political life of the nation. (Skeldon,1978)."

Papua New Guinea's population is predominantly rural; it is, however, a population experiencing major change; demographic, social,political and economic.

Rural Settlement Pattern

The pattern of rural settlement is of importance to an understanding of the nature of Papua New Guinea society and is clearly of crucial significance to any discussion of social policy which involves the delivery or organisation of services.

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(5) For discussion of population characteristics and trends see below.

Until relatively recently the term 'village' was used to describe local groupings. The term described the largest identifiable local group with permanent political unity. Such groups are generally small, numbering from under one hundred to around three hundred persons, with a few groups of over one thousand members.(Hogbin,1972, Chowning,1977).

Such groups have names which originally designated specific geographical locations; these names are now applied to the residents as a social unit. The colonial administrators, in particular, were anxious to identify, and locate on their maps, the population under their control. For many areas of Papua New Guinea, however, the use of 'village' for both the people and the settlement they occupy has been unfortunate and misleading. The term implies a degree of centralization, both of community life and physical infra-structure, which is far from universal. To speak of 'village life' or 'services to the villages', as is commonly done, suggests a pattern of reasonably large communities of more or less fixed location, where people are living in relatively close proximity to each other. This is the pattern in many parts of the world and is indeed the pattern in some parts of Papua New Guinea: but in many areas it is not.

Hogbin(1972) suggests that 'most anthropologists' have now adopted the term 'parish' as a substitute for the group of people. A 'parish' consists of persons 'associated with' a certain tract of land, having a distinctive group name, and forming an autonomous political unit. The members of a parish group may or may not live in a 'village';

> "The political unit consists of a grouping of residential units whose members are normally on friendly terms with one another. The nature of the residence pattern ranges from dispersed homesteads to nucleated and elaborately laid-out villages".
>
> (Chowning,1977:p.41)

There are five main types of parish settlement in the rural areas of Papua New Guinea: undivided and planned, hamlets, planned with wards, unplanned and homesteads.(Hogbin,1972).

In undivided and planned settlements, there is generally a central area used for communal activities and communal buildings of various sorts. Dwellings are arranged around this central area, with variation in the pattern of arrangement in different areas. The essential point about such arrangements is that they emphasize the unity of the parish and, again in general, such parishes are not subdivided into subsidiary groups such as class, sub-class or lineages.

In such cases then, there is one socio-political unit in an identifiable 'village'.

Where parishes are divided into several subgroups it is common that the parish territory is divided among those groups and each group builds houses, and other facilities in small hamlets. These hamlets may be quite close together or separated by a considerable distance. Such a settlement pattern is common in the many highland areas although there is considerable variation in settlement pattern and size.(6) The small hamlet may be seen as close to an extended family group; relationships between such groups are complex(Brown and Buchbinder,1976) but the essential point here is that the focus of social unity is at the level of the hamlet. The parish group is significant, as indeed are much wider and larger groups but the hamlet group tends to be politically strong, with the possibility of conflict ever-present between the various groups in a parish.

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(6) For discussion of settlement patterns in the Southern Highlands see Chapter 7.

Where the hamlet pattern is strong then, we have a relatively scattered population where primary focus in terms of social and political activity is on relatively small groups, at least for the greater part of day to day activity.

The significance of the difference between 'village' settlement patterns and 'hamlet' settlement is of extreme importance to the questions of rural development, community organisation and service delivery.(7)

Less common but of importance, there have always been settlements planned with wards, in which distinct sections are marked off for occupation by one of the set of descent groups in the parish. This may be seen as containing elements of both the patterns described above. There is some resemblance to the hamlet pattern, insofar as distinct sub-groups, which provide a focus for social and political life, occupy separate areas. On the other hand, the political unity of the whole parish is likely to be stronger, given the greater physical proximity of the separate areas, as is the degree of communal activity and 'parish identity'.(8)

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(7) For a discussion of this question in relation to the Tanzanian rural development effort see Bakula,B.1971. 'The Effect of Traditionalism on Rural Development: The Omurunazi Ujaniaa Village, Bukoba; in Building Ujamaa Villages in Tanzania. edited by J.H.Proctor, pp.15-32, Dar-es-Salaam: Tanzania Publishing House.

(8) It is interesting to note that this pattern of settlement has been used in some urban areas where a compromise was demanded between totally 'mixed' housing and completely separate settlement areas for urban migrants from different parts of the country. Arawa provides examples of this. John Sania, personal communication, University of Papua New Guinea,1978.

Unplanned settlements, Hogbin argues, are compact settlements with no apparent planned distribution of housing. This will be true, in some areas, of the physical layout of buildings; but as we have seen above is of most importance in the sense that it reflects an absence of significant sub-group identification in relation to the affairs of daily life.

Finally, there are areas, notably the central and western highlands but foothills in many parts of country, where there is a homestead pattern of settlement. This is the most dispersed form of settlement, and is, fairly obviously, associated with low levels of population density. Each individual family in the parish occupies a homestead associated with its garden areas. The family unit here will commonly consist of husband, wife or wives, and young children. Adult children will leave and establish their own homesteads. Because of it's size, the homestead is relatively weak, both economically and politically. This weakness is compounded by its inherent instability over time. For activities which demand more than the capacity of the homestead group assistance must be sought from the wider parish group, on the basis of complex, and varying, systems of reciprocal obligation and exchange. The extent to which the wider parish group functions as a whole will vary also, frequently in response to external threats. Again, the importance of this form of settlement for rural development efforts is considerable. It must be stressed here that in all forms of settlement there is wide variation between areas of the country and indeed within specific local areas. In general, the factors which emerge as most important for later discussion are the degree of physical proximity of local populations; the degree of 'unity' and 'communalism' of particular parish groups; the size and geographical distribution of these social and political unities relevant to particular issues.(9)

(9) For further discussion see Howlett.D. 1973. Papua New Guinea: goegraphy and change. Melbourne: Nelson.

It is of extreme importance to stress that these general descriptions and categorizations are only indications of the major forms of settlement. Moreover, settlement patterns are changing. It has always been so that populations have moved, grouped and regrouped in response to both internal and external factors. The imposition of colonial administration and access to introduced facilities both influenced settlement patterns to a considerable degree,and the latter continues to do so. Howlett, writing of Chimbu, a highlands province, notes these effects:

> "During the colonial period important changes affected all Chimbu settlements. Some resulted from the relaxation of previous restraints, such as the need for defensive positions during warfare, some from the imposition of new forces. Locational advantages in particular have changed with the siting of such new facilities as schools, aid posts and roads. Direct and indirect government and mission pressures have influenced the siting of settlements, house styles, and the disposal of sewage and other waste materials".
>
> (Howlett et al,1976)

Social Organisation

As Chowning(1977:p.106) remarks, 'the amount of published ethnographic material on Melanesia is enormous', and this is particularly true of Papua New Guinea. Much of the most influential anthropological literature has emerged as a result of studies in Papua New Guinea this century; a great deal of it has, more recently, attracted criticism from new generations of social scientists within Papua New Guinea.(Institute of Applied Social and Economic Research,1978). It is not intended here to attempt any systematic analysis of the literature on social organisation in Papua New Guinea, but simply to indicate, at a descriptive level, some general patterns of social organisation.(10)

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(10) For a useful discussion of some of the major debates in contemporary anthropology see Clammer.J.1975. "Economic Anthropology and the Sociology of Development", in Beyond the Sociology of Development. Edited by I.Oxall, et.al.pp 208-228. London: Routledge and Kegan Paul.

One of the most characteristic features of traditional social organisation in Papua New Guinea is the small size of political units. As noted earlier, the size of primary social groups ranges from several hundred to around a thousand persons in most cases. Cultural - linguistic groups are very much larger than this but do not, in general, have the unity or common sense of identity found in the more local social groups. (Chowning;1977, Lepervanche,1972,p. 1065). The largest local group that can be regarded as having permanent political unity is that which is named by its members, is associated with a particular territory, the members of which act together in ritual affairs and warfare. Within such a group, systems for dispute settlement by compensation will exist and membership of the group will determine more or less complex systems of social interaction with members of other groups. There is no satisfactory explanation of the generally fragmented nature of Papua New Guinean political organisation and the general lack of large scale political organisation(Chowning,1977, p.42). To argue from the lack of large-scale political organisation, in anthropological terms "stateless social systems", that there is not 'complex' social political and economic life is seriously wrong. Strathern(1975) for example, has described the extreme complexity of the social, economic and political relationships of highlands exchange systems.

According to Lepervanche(1972), "kinship is the major organising principle" in Papua New Guinean societies. It is argued that although the particular form may vary enormously, every group uses a specific set of kinship ties to:

> ".....link individuals together in a number of ways, as members of exogamous units, as a privileged section of the community, as landowners or custodians of ritual property, as members of residential groups, and so on. In this way kinship and descent criteria serve to delineate significant social categories and groups. Kinship relations are social relations, and the

> acknowledgement of a specific kin tie between individuals entails their recognition of the appropriate set of rights and obligations attached to that tie".
> (Lepervanche.1972.p.1069)

Kinship ties are of overwhelming importance to social life; of particular significance is the complex pattern of rights and obligations engendered by an specific system of social organisation.

Allegiance is, then, primarily to the 'parish' as described above, mediated by the powerful influence of kinship.

With a few exceptions there are no political offices in the traditional system.(11) Leadership is generally achieved not ascribed and a man will emerge as a leader through his own initiative and in competition with his peers. The routes to becoming a 'big man' are various and a man's prestige may rest on his reputation as a fighter, a 'man of knowledge', an orator, or one who has achieved success in economic exchange with others. Many men will combine these roles; the careers and powers of 'big men' have been widely discussed. A number of fundamental issues may be identified. First, there are questions relating to the position of women in traditional societies, especially those with complex exchange systems. (Strathern.A.M.,1972)

Second, the degree to which 'big man' positions may be inherited or otherwise passed from one man to another. The extent to which this is the case is clearly crucial to the real nature of local society.(12) In

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(11) See below for reference to the effects of the imposition, by colonial administrations , of systems of the office-bearers onto existing systems of prestige and authority.

(12) For a useful review of the current debate and a view which challenges that held by many anthropologists see Standish. B. 1978. The Big-man Model Reconsidered. Port Moresby: Institute of Applied Social and Economic Research. Standish casts some doubt on the 'openness'of many leadership systems in Papua New Guinea.

general, the opinion of most anthropologists has been that local political systems were traditionally 'open', allowing considerable movement in and out of 'big man' positions. This position has been criticised(Standish, 1978), in part by Papua New Guinean critics.

Third, the degree to which a 'big man' gains, by virtue of his position, significant advantages for himself, and his immediate family, beyond those of prestige and status. Lepervanche expresses the conventional view:

> "Whatever the basis of a 'big man's' prestige, he must also develop a reputation for generosity by helping others and sponsoring feasts. By so doing he accumulates debtors and dependants and a certain amount of political power".
> (Lepervanche,1972:p.1065)

The question of the degree of political power held by traditional 'big men' and the extent to which they were able to use it to their own advantage has not been resolved. The penetration of traditional society by the western money economy has so transformed Papua New Guinean society that there are now profoundly more significant questions which must be asked. To what extent have traditional 'big men' 'carried over' their power, prestige, and control over resources to business activity and 'modern' politics? To what extent are the rural businessmen operating on a basis of generosity and reciprocity? Can traditional systems such as this survive the inroads of market capitalism or will the rural population be transformed into a peasantry dominated by a new class of those individuals able, for whatever reasons to exploit, to their own advantage, the new economic system?

Strathern comments on the future of the '<u>moka</u>' system:

> "It is apparent then, that the market, through its introduction of cash and the uses to which cash can be put, is creating

> considerable changes in Hagen society. In part,however, cash is channelled back into the traditional system of prestige.....As population grows and cash-crop planting continues.....Will they be able to find some means of combining moka with participation in a market-based cash economy.....Much will depend on whether younger big-men decide to combine prestige-seeking through ceremonial exchange with application to cash cropping activities: whether to extend the rope of moka in new directions or to untwist it altogether".
>
> (Strathern.1975.p.229)

The Prime Minister of Papua New Guinea, Mr.Michael Somare, argued in Parliament for a particular view of the 'big man':

> "The people support the big-man because they know he will help them, not because he is grabbing things for himself".
>
> (quoted by Standish,1978.p.36)

In attempting to comprehend the changes which are taking place in rural Papua New Guinea, Marx's warning, cited by Cliffe, is appropriate:

> ".....the communal ties of reciprocity in labour use and free access to land [are] unlikely to be effective proof against more individualistic property and labour relations with the growth of commodity production". (Cliffe.1977.p.200)

The scale and effects of the transformation which has taken place in rural society are immense; Papua New Guinea is presently undergoing massive social transformation.(13)

In the past it could be said that the people of Papua New Guinea were almost all subsistence horticulturalists and pig-keepers, with fishing being dominant in some coastal areas.

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(13) See Chapter 4 , for some discussion of the transformation.

Similarly, in the past it could be said, certainly with more justification than now, that:

> "Almost the only divisions of labour are those based on age and sex, and economic life is fairly uniform. But particularly regions tend towards economic specialisation".
>
> (Lepervanche.1972.p.1065)

It was always the case, as Lepervanche points out, that particular areas specialised in the production of particular goods and numerous trading systems existed, many involving complex transactions over considerable distances.

This being said, the general statement remains true, that prior to colonisation from the nineteenth century onwards, Papue New Guinea consisted of a large number of fundamentally subsistence societies with minimal specialisation and trading. The focus of both daily life and networks of social relations was fundamentally local, though with considerable variation as to how extensive 'local' might be defined. The people were engaged above all in subsistence production and the complex patterns of social life which were built upon this base. Without extensive discussion which would be inappropriate here, it is not possible to pursue further the question of social structure in 'traditional' society. As Standish remarks, in relation to one aspect of this:

> "Obviously Papua New Guinea has diverse cultures, and extreme generalisations should be avoided when analysing traditional Melaresian politics. It is regrettable that in their search for national identity Papua New Guineans will not receive much assistance from the social sciences literature".
>
> (Standish.1978.p.37)

We are faced now with a situation in which already diverse and exceedingly

complex social organisations, albeit having some basic characteristics in common, have been differentially affected by the penetration of the money economy and commodity production. As previously noted, generalisations should, in principle, be avoided; they are nevertheless made,and it is instructive to look, given its source, at one of these, which is typical of many:

> "Social organisation is based in most societies on the clan, is egalitarian, with position in society being related to acquired rather than to inherited status. Land ownership is vested in the clan oé in smaller kinship groups. Life for the most part is based on small villages or hamlets. Houses, with few exceptions, are constructed of local bush materials. Food is derived largely from subsistence horticulture, with staples such as sweet potato, yams, bananas and taro making up a substantial portion of the daily intake of energy and protein. Behaviour within societies is regulated by traditional beliefs of a magico-religious nature, by sorcery and by respect for spirits or ghosts of the ancestors, and of places and objects. These beliefs influence to a large extent illness - behaviour in the traditional society. Extensive changes, however, have occurred and are continuing within traditional societies, especially in those with prolonged cultural contact. The influence of the missions, education, health services and agricultural and economic development has led to the abandonment of many of the beliefs and practices which previously regulated social behaviour. These factors, combined with migration to urban areas by those in search of work and a wider experience of life than is available in the village, have radically changed the pattern of life in many villages in ways which some would claim are leading to progressive social breakdown and disorder".
>
> (Papua New Guinea,Dept.of Public Health,1974:p.7)

It can be clearly seen that such a generalisation, although extremely useful as a guide to some major features of Papua New Guinean society ,does mask a large number of crucially important local variations.(14)

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(14) For specific discussion of some of these issues in relation to a particular province - The Southern Highlands, see below, Chapter 7 .

There can be no doubt that the topography of Papua New Guinea contributed to the wide linguistic and cultural diversity found in the country. The traditional social order, did, in many instances, serve to maintain this diversity by cultural barriers to movement and interaction. As noted earlier, economic, social and political change has been rapid and increases its pace as the money economy penetrates further. Just as traditional social organisation was diverse and complex, so too is contemporary social organisation. Diverse traditional systems have been transformed differently, over varying periods of time, and levels of intensity. There are crucially important common themes in the social change which is taking place but these are to be found in constant interaction with an often bewildering mosaic of cultures, customs and forms of social organisation.

Population

One common theme, of fundamental importance, is that of population. It is intended here only to outline the most general features of the demographic situation in Papua New Guinea.(15) As noted earlier, the last complete census was in 1971, and the information which follows derives largely from that census. All discussion refers to the Papua New Guinean population only and excludes expatriates. Population projections are derived from growth rates calculated on the basis of the 1971 figures and those from the first national census in 1966. (Papua New Guinea, Bureau of Statistics, 1978: p.10)

The country is now in a period of declining mortality and continuing high fertility, often referred to as the 'period of demographic transition'. In this phase, the combination of high fertility and declining mortality produces a rapid rate of population increase. Table 3.1. gives figures for the five years up to and including 1978.

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(15) For a more comprehensive treatment see Rafiq.M.1978. Population Profile of Papua New Guinea. New York: United Nations Fund for Population Activities. Details of the literature may be found in Faircloth. S.1978. Population Studies in Papua New Guinea. Port Moresby : Institute of Applied Social and Economic Research.

TABLE 3.1

Projected Population, Crude Birth and Death Rates and Percentage Population Increase for Years Ending June 1974-1978.

	1974	1975	1976	1977	1978
Urban Number('000)	315.2	352.5	393.1	428.4	467.0
%	11.9	12.9	14.0	14.8	15.6
Rural Number('000)	2,338.8	2,377.7	2,415.9	2,467.1	2,517.8
%	88.1	87.1	86.0	85.2	84.4
Total Number('000)	2,654.0	2,730.2	2,809.0	2,895.5	2,984.8
Crude Birth Rate /1000	44.2	44.4	44.6	44.8	44.9
Crude Death Rate /1000	16.3	16.2	16.0	15.7	15.4
Annual Rate of Population Increase %	2.76	2.78	2.82	2.86	2.9

(Source: Papua New Guinea, Department of Public Health. 1974.p.22)

The decline in mortality has occurred largely in the last twenty five years and has been due to many factors including better nutrition, more extensive health services and improved personal and community hygiene. Changing mortality has largely affected death rates in children with the result that family size is increasing throughout the country. (Papua New Guinea, Office of Environment and Conservation. 1978) The demographic situation may be discussed in relation to five major features; fertility and birth rate, mortality, population increase, internal migration and population density.

Fertility and Birth Rate

Age specific fertility is shown in Table 3.2. The pattern is typical of many countries, but the level is high. In 1971, the expected total fertility per woman was 7.10 in Papua New Guinea compared to figures for the average developing country of 5.74 and the average developed country of 2.66.(World Bank.1972)

TABLE 3.2

Age Specific Fertility Rates for Urban, Rural, Rural Non-Village and Total Populations.1971.

Births Per 1,000 Females in Specific Age Groups.

AGE OF FEMALES	AREAS			TOTAL
	URBAN	RURAL	RURAL NON-VILLAGE	
15-19	109	72	74	78
20-24	339	312	320	316
25-29	317	328	345	327
30-34	260	295	302	291
35-39	217	226	213	224
40-44	105	130	103	127
45-49	37	61	47	59
WEIGHTED AVERAGE FOR WOMEN 15-49 IN 1971	253	207	213	213
EXPECTED TOTAL FERTILITY PER WOMAN	6.92	7.12	7.02	7.10

(Source : Papua New Guinea, Department of Public Health. 1974.p.15)

There is some evidence that fertility has increased in recent years. In urban areas, actual fertility at younger ages has been shown to be higher than in rural areas, partly due to earlier marriage. (Papua New Guinea, Bureau of Statistics, 1974). Overall, and of more significance, there has been a decline in the importance of post-partum sexual intercourse taboos which previously spaced births two or three years apart. (Bulmer,1971) Similarly, socio-economic change has resulted in a decline of traditional methods of preventing conception. (Bulmer,1971; Radford,1972; O'Collins, 1978). While there has been a decline in traditional contraception and abortion, and a shortening of birth intervals due to changes in sexual taboos ,the reproductive period has been extended by both earlier menarche and later menopause. Both these changes have been

attributed primarily to better nutrition. (Ring and Scragg,1973) It is not expected that fertility will fall to any extent over the next ten years. The decline of traditional sex taboos in particular is expected to continue, and the evidence suggests that this decline will in fact continue to result in increased overall fertility. In the longer run a decline in fertility may be expected; in part from the increased adoption of introduced methods of contraception which may result from specific family planning programmes but most important by the more general effects of socio-economic change. Evidence from most countries which have experienced a period of very rapid population growth of this type supports strongly the view that a decline in fertility comes as a result of changing socio-economic conditions. (Sorkin,1976: p.77)

Mortality

As noted earlier, mortality, especially that of children, has diminished to a considerable extent in the last twenty to twenty-five years, though it remains very high in comparison with very many other countries. Table 3.3 gives figures calculated for 1971 and projected for 1976 and 1981. There are, however, very wide variations within these gross national figures. The much lower urban rates reflect both the availability of health services and better nutrition in urban areas. There are great differences between different parts of the country, the higher rates being in the Highlands and Sepik provinces and the lowest in the islands.

TABLE 3.3.

Observed and Projected Crude Birth and Death Rates, (Per 1,000) Expected Child Mortality From Birth to 5.0 Years(NO/1,000), Expectation of Life at Birth, and Rate of Population Increase 1971,1976,1981.

	1971			1976			1981		
	Urban	Rural	Av.	Urban	Rural	Av.	Urban	Rural	Av.
CBR/1,000	39.6	45.6	43.6	46.7	44.6	44.6	49.4	43.9	45.3
Child Mortality No/1,000	116	194	187	101	171	161	85	149	136
Expectation of Life (Years)	57.1	48.4	49.3	59.4	51.1	52.3	61.5	53.3	55.0
CDR/1,000			16.6			16.0			14.1
Population Increase % Per Annum			2.70			2.82			3.12

(Source: Papua New Guinea, Department of Public Health,1974.p.17)

Population Increase

A constant or increasing fertility or birth rate, combined with a falling mortality or crude death rate, results in an increasing rate of population growth. The rate of growth is estimated for 1979 at around 3 per cent per annum(Office and Environment and Conservation,1978: p.7), and projections based on the 1971 census suggest an expansion of population during the period 1971 to 1986 of 3.1 per cent annually. The country, therefore, has an accelerating rate of population growth; the combined effect of an increasing birth rate and an accelerating decrease in the death rate. Again, the rates are far from uniform within the country; table 3.4 shows population projections to 1986 and the great differences in rates of population growth between urban areas, rural areas, and 'rural non-village' areas. The

latter are very small towns, plantations, schools and so on, essentially 'non-traditional' rural settings.

TABLE 3.4

Population In 1971 And Projected for 1976,1981 and 1986

Mid Year('000)

	1971	1976	1981	1986	Annual Expansion 1971-1986. %
Urban Number	230.2	393.1	607.6	884.9	
%	9.5	14.0	18.5	27.9	9.4
Rural Number	1,982.7	2,097.9	2,233.2	2,400.6	
%	81.4	74.7	68.2	62.0	1.3
Rural Non-Village Number	222.6	318.0	436.4	585.7	
%	9.1	11.3	13.3	15.1	7.7
Total	2,435.5	2,809.0	3,277.2	3,871.2	3.1

(Source: Papua New Guinea, Department of Public Health,1974: p.19)

Note: See below for discussion of predicted rates of urban growth.

One outcome of a high population increase due to declining child mortality, which is of major significance, is a change in the age structure of the population towards a high child/adult ratio. Papua New Guinea has a very high ratio, higher than most other developing countries and very much higher than the developed countries; nearly half the Papua New Guinean population is under fifteen years old. (Table 3.5) There is a very high ratio of dependent children to those who are required to support them in terms of goods and services. The population under fifteen also, of course, comprises cohorts of future parents; this demonstrates clearly the exponential nature of rapid population growth.

TABLE 3.5

Age Distribution of Indigenous Population for 1971 and Projected for 1976.

Percent

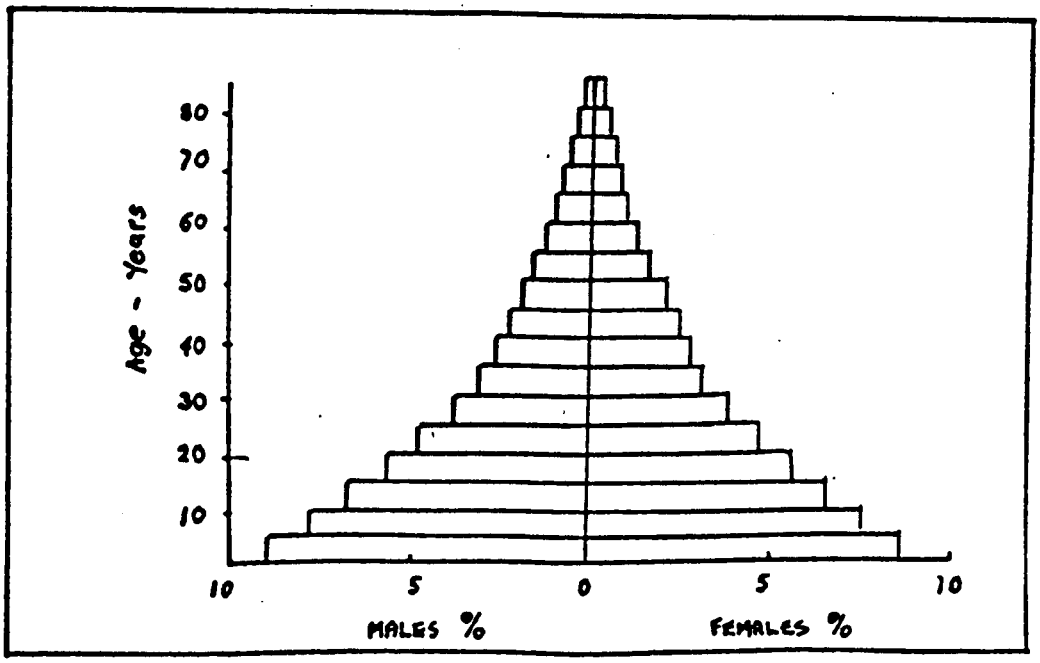
Age	1971	1976
0-14	43.8	44.3
15-29	24.8	25.8
30-44	15.3	14.7
45-59	9.8	9.3
60-74	5.1	4.8
75+	1.2	1.1
Total	100.0	100.0

(Source: Derived from Papua New Guinea, Department of Public Health, 1974: appendix 3.6.)

The age structure of the population is shown graphically in Figure 3.1., this pyramid is typical of developing countries and demonstrates clearly what has already been stated; there are very high proportions of children, particularly in the very young age groups. If present trends continue, which they are expected to do, each successive year will add a larger number of children at the base of the pyramid.

Figure 3.2

Age and Sex Pyramid, 1971.



(Source: Papua New Guinea, Department of Health. 1974:18)

Such high rates of population growth, concentrated at the lower end of the age structure have been described as a 'population explosion'. (Howlett,1973:p.24) The consequences of this are recognised as serious:

> "This growth will place an increasing burden on the nation's subsistence system of agriculture. More and more effort will be required to maintain production per head of population and standards of subsistence income will ultimately decline. Severe pressure on land is already felt in some areas(e.g. parts of Chimbu, East New Britain and East Sepik Provinces) and will be felt in more places as population continues to grow. The experience of other developing nations indicates that the rate of population growth is very slow to respond to a rising density of population on land suitable for agriculture so there is a very great danger that the nation's subsistence base will be severely eroded while attempts are made to increase cash incomes".

(Papua New Guinea, Central Planning Office, 1976: pp.7/8. emphasis in original)

Internal Migration

There are high rates of internal migration in Papua New Guinea; most notably and visibly from rural to urban areas, but also between different parts of the country. In both cases migration is generally in the direction of areas of greater actual, or potential, economic activity. The location of extractive industries and the greater degree of economic development in many coastal areas has produced high rates of migration from 'less developed' areas. (Garnaut,et.al.1977,May,1977, Skeldon,1978)

Of most importance, particularly in relation to policy making in recent years, has been the rate of migration to urban areas.

Here, the data has been 'difficult',to use Jackson's term. (Jackson,1976:p.496) In 1974, the National Health Plan accepted the dominant view at that time that an average annual rate of urban growth of about 9.4 per cent would be maintained over the period 1971-1986. (Papua New Guinea, Department of Public Health,1974:p.20) This rate would, it was predicted, produce an urban population of 884,900 by 1986, 23 per cent of the projected total population. The 'main reason' accepted by the Health Plan for this very high rate was 'continuing migration from rural to urban areas'. Comparisons of the 1966 and 1971 census figures had produced a 17 per cent annual rate of urban population growth between those dates, largely, it was argued, due to migration. More recently, however, some doubt has been cast on the accuracy of both the 1966-1971 figures and the projections of urban growth due to migration based on them. Both sets of census figures were subject to wide margins of error and these were compounded by definitional problems and boundary changes. (Skeldon,1978b) There is absolutely no doubt that there is a high rate of internal migration, particularly from rural areas to towns but the precise level is not clear; neither is the exact nature of this migration, in particular the degree to which migration is permanent or temporary for individual migrants. Skeldon states that:

> "...recent evidence suggests that not only has urban growth slowed down in recent years but that, for a number of reasons, the 1966-71 trends in urban growth were distorted."
>
> (Skeldon,1978b.p.2)

Having seriously questioned earlier predictions, Skeldon does not, however, minimise the consequences of the less dramatic figures which are produced from his analysis of more recent evidence:

"The urban growth figures certainly do not hint at any trend away from centralism towards the development of regional centres.

On the other hand, the existing trend does show clearly that fears of a massive urban population by the mid-1980s were largely unfounded. Total urban growth from the 1966-71 apparent trend was exaggerated and growth is slowing down. Rather than a total urban population of one million in 1986 it would seem to be more realistic to expect one of around 600,000. This would mean that at that time Papua New Guinea will have approximately 15 per cent of its population living in urban places.

However, we cannot be complacent about problems of urbanisation. The continued growth of Port Moresby at rates of 6 to 7 per cent per annum is still high by world standards and will pose sufficient problems for planners and politicians alike."(Skeldon,1978b:p.16). (16)

Population Density

The distribution and density of the Papua New Guinea population is irregular but on the whole the country is comparatively sparsely populated, with an overall density of about 6 persons per square kilometre. There are, however, extreme variations within the country,with scattered regions of much higher and lower densities. In general, the highlands, and especially the zone between 1500 and 2100 metres above sea level are more closely settled than the lowlands and islands. The five highlands provinces, out of twenty provinces in all, contain 39 per cent of the total population while occupying only 13.7 per cent of the total land area. (Papua New Guinea, Office of Environment and Conservation.1978). By contrast, the altitudinal

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(16) The figure of one million for 1986 was a prediction by the Housing Commission which had considerable impact. see Papua New Guinea, Housing Commission,1975. National Housing Plan. Port Moresby : Government Printer. For an interesting review of 'public' attitudes to the population issue see Suu.I. 1978. The Post-Courier debate on population and family planning 1972 - 1977. Port Moresby : Institute of Applied Social Economic Research.

zone between approximately 750 and 1200 metres is everywhere virtually unpopulated due to terrain conditions and hazards to health, particularly the presence of malaria. (Howlett,1973) In general, population distribution has, in the past, been governed by environmental factors. Given the relative simplicity of traditional technologies, the greatest concentrations of population would have been expected in areas that are well drained, with fertile soil and reliable but not excessive rainfall. To a large extent this was true; the broad pattern of population distribution was attributable to the quality of the environment. (Ford,1974)

However, there are a significant number of local areas in which population densities are not explicable in these terms. As Ford puts it:-

> "In the macroscopic view, population density in various areas is thus predictable. Closer examination of some smaller areas, however reveals quite marked differences in density, where apparently similar environmental conditions exist".
>
> (Ford,1974:p.32)

The pattern of population distribution has been, and continues to be, considerably affected by new forms of economic activity, improved transport systems and better medical services. (Howlett, 1973) By no means all these changes are in the direction of a more even population distribution, however, and much of the available evidence suggests that the nature of economic development in particular is such to increase the imbalance in population distribution. (Valentine and Valentine,1979)

In summary then, the population has increased in both size and mobility in recent years and continues to do so. The nature of

population growth is such that there is a progressive imbalance between the younger dependent section of the population and the rest. Population is unevenly distributed and in some areas population pressure is reaching the point where it becomes critical for subsistence. But the relationships between people and the land are changing fast; it is no longer the case that the production from specific land is necessarily available as the subsistence for the people of that land. Connell discusses the transformation of the rural population:

> ".....rural people increasingly dependent on a world beyond and increasingly unable to escape decisions made without their consent. The transition from a subsistence economy to cash economy has increased this dependence on the external environment and resulted in considerable inequalities between more and less favoured parts of P.N.G. Increasingly population pressure on resources has further strengthened those inequalities whilst land and labour have undeniably become commodities in a variety of areas".
>
> (Connell,1979:p.45)

The nature of economic development in Papua New Guinea, the attempt to formulate and operationalise a national development strategy, and the social transformation of, in particular, rural society are discussed in Chapter 4.

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CHAPTER 4.

The Economy and Development Strategy

Papua New Guinea is essentially an agricultural country. Although the monetary sector of its economy has increased rapidly, subsistence agriculture remains, as noted earlier, the largest single occupation, involving more than half the population. The money economy, dependent in the past almost entirely on the export of primary products, has begun to diversify somewhat in recent years; mining, fisheries, forest products and some manufacturing have begun to take significant shares, by value, of total production, but employ relatively few workers. (World Bank, 1978).

Agricultural activity in Papua New Guinea is in three forms : traditional subsistence production, smallholder cash cropping, and plantation production. Government policy over the past twenty years has been to promote cash cropping, largely of export crops, and many families now raise both subsistence and cash crops. (Good and Donaldson.1978, McKillop,1975;1978) Until recently, relatively little attention had been paid to improving traditional agriculture, partly because it was considered to be reasonably efficient and adequately productive in terms of the resources employed. Furthermore, problems in storing, transporting and marketing traditional crops such as sweet potatoes, taro, yams and cassava made them unsuitable for export. With no significant internal markets for traditional food produce, growing cash crops for export was argued to be the most appropriate means of extending the modern cash economy into the rural sector. The general effect of this policy has been to seriously dislocate pre-existing economic and social systems, in particular with the deliberate encouragement

of larger-scale producers of export cash crops. (Howlett,et.al.1976, McKillop,1975) For example:

> "In Chimbu, the concentration of extension assistance and provision of credit to a few.....is leading to the stratification of rural society and the emergence of a rural elite with an effective monopoly of these scarce resources, and hence the momentum to further increase its advantage. This result, obviously unlooked for, will be difficult to reverse....."
>
> (Howlett,et.al.1976:pp 249-50)

There is now somewhat more emphasis put on improving traditional agriculture in order to raise rural living standards. Although the marketing and transport constraints still apply in many areas, making enlargement of the subsistence sector difficult, the government is attempting to develop programmes which will increase the yields and nutritional value of traditional crops and diversify subsistence production to include more non-root crops, and animals. (Wilson and Bourke,1976) At the same time, however, government continues to encourage production of cash crops, principally those for export.

Smallholder production is particularly important in two of the major agricultural export crops, coffee and palm oil, and there is a strong trend for smallholders to leave subsistence agriculture for export production of these and other commodities:

> "Smallholder cash cropping for domestic markets is much weaker than smallholder production for export markets. The technical and institutional problems of building up domestic markets for food products are more difficult than those of producing exports".
>
> (World Bank,1978:p.31)

Coffee is now produced mainly by smallholders and about two-thirds of palm oil is produced by a form of smallholder production. In relation to the latter, and to some other crops

such as rubber, it has been argued that the nature of the large-scale resettlement schemes, commonly used as the basis for production, is such that producers are far from being genuine 'smallholders', but are more akin to "plantation workers". (Valentine and Valentine,1979)

There is then a degree of smallholder production, very largely of export crops, which interacts, and thus far with generally deleterious results, with subsistence agriculture.

In addition, there are a number of scattered pockets of wage labour on plantations, which are almost completely oriented to the production of cash crops for export. (Gordon,1976) In the period following the second World War, the main beneficiary of the government's policy favouring cash crops was the expatriate plantation sector, which grew rapidly. The government purchased land from Papua New Guineans for lease to expatriates, who had easy access to favourable credit terms. In addition, a number of fiscal incentives were offered to those establishing and operating plantations. (Donaldson and Turner,1978) The administration assisted also by mobilising the local labour supply for the plantations. The introduction of the head tax forced the local population to earn cash, usually by working on the plantations. There are now between five and six hundred plantations, mostly on the northern half of the mainland and the larger islands. Almost all are still owned by expatriates, but there is now some acquisition by Papua New Guineans. The plantation sector employs around 35,000 Papua New Guinean wage labourers. (World Bank,1978: p.41) Output of the main plantation crops - coffee, cocoa, copra

coconut oil and palm oil - had, until recently, formed the major part of the country's exports. As noted above, for some of these, notably coffee and palm oil, there has been a trend to smallholder production.

In terms of value of exports, agricultural production has now been eclipsed by the copper production of the Panguna mine on Bougainville:

> "Nothing in Papua New Guinea's history has changed the structure of the country's economy so rapidly and radically as the construction of the Panguna copper mine.....During the construction period, from 1970 to 1972, the project accounted for more than 60 percent of gross fixed investment and a third of imports. As the mine came into production in 1973 and 1974, it contributed about a third of the country's GDP and more than half its exports. The main contributions of the project to the economy are financial, particularly in domestic revenue and foreign exchange earnings. The project's contribution to employment or to the stimulation of service and feeder activities on Bougainville appear relatively modest".
>
> (World Bank,1978:p.52)

The massive significance of Bougainville Copper in revenue terms is clear; its effects on employment and thus on individual incomes is far from massive:

> "There is very little direct involvement of Papua New Guineans in the project; over 150,000 tons of copper concentrate per year are produced by a small work froce of 4,000."
>
> (Papua New Guinea,Central Planning Office,1976:p.5)

A number of other large scale projects are under consideration but none has reached the stage of active construction. All would be almost exclusively funded by international capital and the subject of profound criticism on economic social and political

grounds. (Mikesell,1975, Utrecht,1978; Valentine and Valentine, 1979)

In terms of providing employment and income for Papua New Guineans, sectors other than agriculture are still relatively small, and apart from copper, provide a small proportion of gross domestic production. Manufacturing accounted for about 8 percent of GDP in 1974. (World Bank,1978) The number of establishments registered as factories has remained at between 700 and 800 since 1971. In 1975 about half of Papua New Guineas factories were in engineering industries; 17 percent in food, drink and tobacco, and 18 percent in sawmilling and joinery. (Papua New Guinea,Bureau of Statistics,1978:p.86)

Total manufacturing employment in 1975 was just over 17,000, almost entirely male. Manufacturing is dominated by the production of food,drink and tobacco, the value of which comprises about one third of the total value of factory production. Beer-brewing, soft-drink bottling, and cigarette production are the major items of factory production. There is no textile mill, no cement mill, no sugar mill, no refining of metal or oil, and no manufacture or assembly of any kind of metal consumer durables, with the exception of one small cast-iron stove manufacturing plant.

Another important feature of the non-agricultural economy is the almost total absence of handicraft workers and the small-scale traders, shopkeepers and service-repair establishments that provide such a large volume of employment, especially in the urban areas, in many other countries. In part this absence reflects the fact that Papua New Guinea's urban growth is quite recent, and was, until

relatively recently, heavily influenced by administration policies which were designed to maintain urban centres as primarily expatriate. (Oram,1976) It also reflects the very restrictive effects of the large number of registration and licencing requirements that the Australian administration introduced supposedly to enforce Australian standards of public health, but also to prevent the development of too much competition for existing establishments, which were largely expatriate owned. These regulations were also intended to discourage urban migration. (Fitzpatrick and Blaxter,1974; Jackson,et.al.,1976) Despite some changes in recent years, it has been argued that the fundamental orientation of the law remains the same. For example, the Public Order (Amendment) Bill 1973:

> "In practice these laws are based, in towns, on the notion of wage employment. A person can be penalised unless he can find wage employment in the public service or in a private sector dominated by expatriates. This is one instance of the continuation of the fundamental colonial structure. Urban based social and economic relations that do not fit this structure remain on an insecure footing.
>
> This is one way in which the law blocks self-employment in those small scale economic activities that the government itself calls for in the Eight Aims. There are numerous other laws which have the same effect and which arguably, have been greatly instrumental in preventing the growth of that "bazaar economy" typical of Third World cities. Apart from some recent growth in small market areas, this sort of small scale economic activity - the street stall, small shop, pedlar and bazaar - remains largely non-existent in Papua New Guinea towns"
>
> (Jackson,et.al.1976:pp.82-83)

Given the scale and nature of manufacturing industry, and the very low level of small scale non-agricultural economic activity, the major source of wage employment and cash income is government activity:

> "Although the growth of export-led agriculture will be a major stimulant to demand, the dominant influence in leading the economy will be the central government, much the largest sector outside agriculture and the primary source for creation of exogenous demand. For at least the next decade or two and perhaps longer, government programs and provision of technical assistance to implement them will be the principal influence on any restructuring of the economy".
>
> (World Bank.1978.p.31)

Government at both central and provincial levels is by far the largest employer in Papua New Guinea, most particularly for occupations requiring education and training. In 1975, about 180,000 Papua New Guineans were in wage employment; almost half employed by government. Public sector employment grew at an annual rate of 5.7 percent between 1971 and 1975. (World Bank, 1978) In addition, central government is the largest source of demand for investment activity, the largest mobiliser and provider of capital and the largest source of funds spent within the country. Thus government activity has a massive direct economic impact; more important than this is its actual, and potential, role in setting goals, devising policies and programmes, and mobilising the real and financial resources needed to achieve these goals.

Economic Policy and Development Strategy

Papua New Guinea gained political independence on 16th September,1975, but has been internally self-governing since 1st December,1973. It is from the earlier date that considerations of the development strategy may be made.

There was substantial economic growth prior to self-government; between 1967-68 and 1972-73 the gross domestic product

increased by 44.1 percent in real terms. The main source of increase in total gross domestic product was the rapid growth of the monetary sector relative to the subsistence sector. By 1972-73 the monetary sector produced 79 percent of the total output of the economy, but employed, as noted earlier, a very small proportion of the total population. (Papua New Guinea, Bureau of Statistics,1974) The major reasons for the rapid growth of monetary sector output during this period are clear. Between 1969-70 and 1971-72 there was a huge investment in the construction of the Bougainville copper mine, and in 1972-73 when investment returned to earlier levels with the end of the mine's construction phase, exports rose dramatically as the beginning of the mine's production phase resulted in copper becoming Papua New Guinea's principal export commodity.

The year of self-government,1973-74, saw a further substantial increase in export earnings as export prices almost doubled. In that year alone the aggregate output of the monetary sector increased by approximately 11 per cent. The economy, being based on the export of primary products, is influenced dramatically by fluctuations in commodity prices set elsewhere. The susceptibility of the economy to external economic forces became apparent in 1974-75 and 1975-76 when export prices of agricultural produce fell and sales of copper were reduced as a result of the world recession. This reduction of export activity produced a fall in monetary sector gross domestic product of 14.3 percent in 1974-75 and a rise of only 2.3 percent in 1975-76. In 1976-1977 monetary sector gross domestic product increased by 2.4 percent with a boom in coffee prices. (Papua New Guinea,National Planning Office,1978B)

Two features of the economy are therefore clear, in addition to the pattern of activity outlined earlier. First, that a very large proportion of economic activity had been integrated into the market system by the time of self-government, whether in the form of simple commodity production, or large-scale capitalist commodity production; the economic development of Papua New Guinea is determined by what happens within that market system.

Second, the economy is acutely dependent on the sale of a large part of its output in externally controlled commodity markets:

> "The development of capitalism within a colonial or neo-colonial framework is based on the transformation of subsistence agriculture into agricultural production for export, and on mining and merchant trading. The distortion of the natural economy toward production preponderantly for export is a function of the superior productivity of at the centre, in all fields. Countries at the periphery are reduced to supplying complementary products-exotic agricultural products and minerals - and to receiving manufactured products. The (neo-)colonies remain deprived of basic industries. The growth of colonial and neo-colonial capitalism is determined by the demand in the capitalist metropoles for primary products supplied by the (neo-) colonies".
>
> (Donaldson and Turner,1978:p.1)

Economic policy in Papua New Guinea since self-government has, in broad terms, followed that pursued by the colonial state. Crucially, the overall strategy has been one which relies to a considerable extent on the free play of market forces in an economy in which the most influential and dynamic productive sectors are privately owned, a large proportion of this ownership being in the hands of foreign interests. One

estimate, believed to be conservative, suggests that:

> "At the present time foreign investment constitutes an estimated 80 percent or more of the private sector".
>
> (Papua New Guinea,National Investment and Development Authority,1975:p.II)

In relation to imports, Papua New Guinea has, since self-government, continued a free trade policy that makes it, in Berry's view, "one of the most open economies in the whole of the Third World". (Berry,1977:p.149)

In terms of more specific economic policies, there have been three major developments since independence; the negotiation in 1976 of a five-year aid commitment from Australia, the successful implementation of a hard currency strategy and the preparation of a National Development Strategy and National Public Expenditure Plan.

In March 1976, the Australian government entered into a five-year aid committment worth about A$200 million per annum. This is an enormous sum; Australian aid provides over 40 percent of the government's total revenue and over 40 percent of its foreign exchange requirements. (Papua New Guinea,Department of Finance, 1978) The vast majority of Papua New Guineans have annual incomes of K 100 or less from production within Papua New Guinea(1); Australian aid raises disposable income by K70 per capita.

Although this massive dependence on Australian aid raises many

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(1) The exchange rate for the kina was £0.639 in October, 1979. Post-Courier,October 19th,1979,p.12.

profoundly serious questions the successful negotiation of a five-year commitment did achieve a degree of certainty, crucial to any economic planning. (Papua New Guinea,Planning Office. 1978)

The hard currency strategy, which has attempted to maintain the value of the currency and avoid depreciation, has been successful in terms of that objective. The kina, which was previously equivalent to the Australian dollar, is now worth considerably more. (World Bank,1978) However, as Berry points out, as with all economic policies, costs and benefits are borne by different groups:

> "Those who have benefitted most from the hard currency strategy have been those importers who have not passed on to consumers the reduction in the kina cost of imports.....and those foreign compenies producing for the domestic market, since the value of their assets and profits in terms of foreign currencies increases with a revaluation of the kina. Those who have borne most of the cost of the hard currency strategy have been national exporters since revaluation of the kina reduces the unit price of exports expressed in kina."
>
> (Berry,1977:p.150)

The third major development in economic policy has been the preparation of the National Development Strategy and the subsequent National Public Expenditure Plans.

Prior to self-government, international concern for Papua New Guinea's continuing Colonial status and the need for rapid progress to political independence was reflected in the concern by the World Bank for a strategy of economic development to take Papua New Guinea to independence. (International Bank for

Reconstruction and Development,1965)

The IBRD report urged Australia to rapidly develop those regions of the country with significant economic potential. The report assumed that rapid economic growth would promote the means for Papua New Guineas independence, with little consideration being given to the social and political consequences of such a strategy in a country with strong regional identification.

In 1972, a year before self-government, a development consultancy team from the University of East Anglia recommended an alternative strategy to that suggested by the IBRD(Faber et.al, 1973). The 'Faber Report', as it has become known, saw development more in terms of distributional principles and emphasised the need for greater control of the resources of Papua New Guinea by the nationals of the country. There was an obvious influence in the report from the Tanzanian experience, both in terms of the emphasis on social objectives and in some of the policies proposed for achieving those objectives (Clunies-Ross,1973)

The influence of the Faber recommendations was very clear. Prior to publication of the report, Mr Michael Somare, who was to become Chief Minister following self government, announced the development aims of an independent Papua New Guinea in a press release on 15th December,1972.(Clunies-Ross,1973) The Eight Aims, which had been approved by the Cabinet on 14th December, 1972, were basically a condensation of the major recommendations of the Faber Report, and were later set out in the 1973-74 Improvement Plan and subsequent documents as the basis for Papua

New Guinean development. Based on four major principles, equality, self-reliance, decentralisation and rural improvement, the aims are:

"Papua New Guinea's Eight Aims:

A rapid increase in the proportion of the economy under the control of Papua New Guinean individuals and groups and in the proportion of personal and property income that goes to Papua New Guineans.

More equal distribution of economic benefits, including movement toward equalisation of incomes among people and toward equalisation of services among different areas of the country.

Decentralisation of economic activity, planning and government spending, with emphasis on agricultural development, village industry, better internal trade, and more spending channelled to local and area bodies.

An emphasis on small scale artisan, service and business activity, relying where possible on typically Papua New Guinean forms of business activity.

A more self reliant economy, less dependent for its needs on imported goods and services and better able to meet the needs of its people through local production.

An increasing capacity for meeting government spending needs from locally raised revenue.

A rapid increase in the equal and active participation of women in all forms of economic and social activity.

Government control and involvement in those sectors of the economy where control is necessary to achieve the desired kind of development."

(Papua New Guinea,Central Planning Office,1974:p.x.)

"Development" has been defined as:

> ".....two interrelated but analytically separable lines of definition. On the one hand, development is concerned with increased production of material goods and services. This notion of development is ofter termed as "economic growth".....towards self reliance. On the other hand, development is concerned with change in the distribution of material goods and in the nature of social relations.....The focus is on basically qualitative and distributional changes in the structure of societies through the elimination of discrimination and structurally determined exploitation, the creation and assurance of equal opportunities and the more equitable distribution of the benefits of economic growth among people".
>
> (United Nations,1976:p.4.)

Papua New Guinea's eight aims established guidelines which were primarily concerned with the distributional aspect of development, the economic growth aspect being taken as an underlying assumption. The basic targets for development in Papua New Guinea are therefore 'self reliance' and a more egalitarian society in terms of more equal distribution of government services and creation of economic opportunities.

The formulation of specific policies to achieve these targets, and the implementation of such policies, has dominated national planning since self-government. (Lepani, 1976; Hinchcliffe, 1979)

The eight aims were given as the basis of the National Development Strategy, published in 1976, a year after independence. (Papua New Guinea, Central Planning Office, 1976) Guidelines were set out for policies and programmes required to implement that strategy. Recognising the trends in the Papua New Guinean economy outlined earlier as being in contradiction to the principles of the eight aims, the strategy called for:

> "a high proportion of the nation's resources to be directed to rural areas. Government policies will concentrate on reducing inequalities by spreading income earning opportunities throughout rural areas. The strategy will also be concerned to maintain subsistence production and improve the range of subsistence goods.....Rural development is to be based on a gradual improvement of traditional forms of production.....Urban development should be seen as complementary to rural development and laying the basis for future industrial based expansion. In the past towns have grown largely as a result of external forces. Future urban growth is to be geared to the provision of necessary rural services".
>
> (Papua New Guinea, Central Planning Office, 1976:p.1.)

The National Development Strategy was clear as to the objectives of development, the nature of the policies required to meet those objectives and the trends in Papua New Guinean economy and society which were rapidly taking the country away from its expressed objectives. Berry, (1977) writing a year after the strategy was published, argued that the prospects for achieving the eight aims with that strategy were 'slender'. His case, in common with many others, was that continued dependence on foreign resources and an implicit acceptance of the superiority of private ownership and

free trade made the strategy inherently contradictory:

> "It is therefore Utopian to believe that Papua New Guinea can reduce inequalities, or indeed prevent them from increasing, and at the same time rely so heavily on private enterprise."
>
> (Berry,1977:p.158)

The policies which may be pursued at any time do not, of course, emerge solely or even largely, from rational analysis of what is necessary to achieve stated objectives. As Berry concludes:

> "However, while in theory there are alternative development options, the options that can be effectively pursued are constrained by the interests of those groups dominant in society. At present the social preconditions for a more radical strategy would appear to be absent".
>
> (Berry,1977:p.159)

The limitations of planning are similarly emphasised by Charles Lepani, director of the Central Planning Office(now the National Planning Office). Having examined at length the large number of constraints, both internal and external, to the achievement of the development goals expressed in the 'eight aims' he concludes:

> "Because development planning is concerned with wide ranging changes and interrelationships in the whole social and economic fabric of society,within the framework of active external factors in the world political economy, many "solutions" involve very radical changes however, necessitating the development of a political machinery and mass mobilization.....
> In the absence of major political movement or a one party state system, development planners can best deal with these restraints by attempting to help political leaders understand the operational implications of their more idealistically formulated policy goals, and by drawing on the accepted constitutional principles of the country.

> Within these guidelines, development planners can then attempt a number of reforms and more radical changes which are most "rationally beneficial" to the achievement of these development goals within the limitations of political possibilities in the country at that historical point".
>
> (Lepani, 1976: pp.17-18)

This statement expresses clearly the dilemmas of economic and social planning in an economy such as that of Papua New Guinea.[2] There is no doubt that there is "a considerable gap between rhetoric and reality" in Papua New Guinea(Donaldson and Turner,1978) There is also no doubt that the economic and social forces, both internal and external which are most powerful in shaping the pattern of change are only to a very limited extent susceptible to policy imperatives and planning measures, given the nature of the Papua New Guinean political system at the present time.

The National Public Expenditure Plan

The major means which has been evolved to maximise the impact of the development strategy is the National Public Expenditure Plan. As pointed out in 1976:

> "The National Development Strategy will not be effective unless the broad guidelines of the strategy are translated into firm policies and definite commitments of expenditure to achieve clearly stated targets. A National Expenditure Plan will be drawn up for implementation in 1978."
>
> (Papua New Guinea,Central Planning Office,1976:p.1)

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(2) See Chapter 5 for discussion of this question in relation to health planning in Papua New Guinea.

The first National Public Expenditure Plan was published in February,1978. (Papua New Guinea, National Planning Office, 1978A) and set out a planning and budgetting system which was to direct government expenditure in line with the objectives of the National Development Strategy. It acknowledged the deficiencies of previous documents:

> "The eight aims indicated clearly that the National Coalition Government intended to make a radical departure from previous policy guidelines. But they did not prove a fully effective tool for re-directing the activities and resources of Government. The aims were not a clear statement of objectives; they were a mixture of objectives and strategies, and virtually any policy decision could be justified by at least one of the aims".
>
> (Papua New Guinea, National Planning Office, 1978: pp.3-4)

It was argued that the National Development Strategy had set out, in broad outline, a consistent set of policy guidelines but that these could only be effective if translated into firm detailed policies and definite commitments of expenditure to achieve clearly stated targets. The National Public Expenditure Plan(NPEP) was 'a first step' in a long-term attempt to achieve direction, and redirection, of government expenditure. Plans are now prepared annually on a 'rolling four-year' basis, to complement the annual budget process and avoid the dangers of year to year planning, one of the most important being:

> ....."a dangerous tendency to allocate a little bit of additional resources to all activities, resulting in too few visible achievements in <u>any</u> direction".
>
> (Papua New Guinea, National Planning Office, 1978A: p.4. emphasis in original)

Control of expenditure through the NPEP is in two forms; all

spending under existing policy was held constant in real terms, based on 1976-1977 expenditure levels, any real growth in expenditure to be reserved for projects approved according to a detailed list of strategic targets and priorities. By this means, the proportion of government expenditure subject to detailed control would rise from year to year subject to the amount of real growth in total expenditure. This was estimated at 3 percent per annum for the 1978-1981 period, and:

> "Three percent growth in public expenditure on goods and services is very little indeed and will not, in any case, be easy to achieve."
>
> (Papua New Guinea National Planning Office,1978A:p.41)

It is important to note, further, the minimal impact of such a growth rate:

> "At 3 percent each year, the growth of government expenditure will barely keep pace with the rate of population growth. Real government expenditure per head of population will, therefore remain roughly constant. This means that the achievement of national aims will depend on the redirection of public expenditure towards the areas of greatest need, and on the continued re-allocation of public expenditure to finance specific development projects rather than maintenance of existing activities."
>
> (Papua New Guinea,National Planning Office,1978B:p.31)

The intention of the NPEP was to extend 'critical examination' to cover existing spending, and it was noted that many existing activities represented the policies of previous administrations and were therefore, in many cases "not consistent with the development objectives formulated since self-government and independence. (Papua New Guinea,National Planning Office, 1978A:p.3)

The NPEP is therefore an attempt to make real the objectives of the National Development Strategy. The present trend of the NPEP is towards a widening of the range of expenditure covered by it and as part of this, attempts to develop closer direction of total departmental expenditures. (Papua New Guinea, National Planning Office,1978B) It is yet too early to judge the success of the NPEP in achieving its objectives. (Hinchcliffe, 1979), but there are grounds for optimism that firmer control of government expenditure has been established and that the overall pattern of expenditure will be brought more closely in line with the objectives of the National Development Strategy. The key questions here relate to the possibilities of achieving genuine incorporation of

> "all forms of public investment,including commercial and semi-commercial statutory bodies, in a more comprehensive development expenditure framework."
>
> (Papua New Guinea, National Planning Office,1978B:p.3)

The fundamental questions regarding Papua New Guinea's economic development remain, however, since whatever level of success is attained by the NPEP in controlling and directing government expenditure and investment,the economy remains small, open and dependent. Although government is the single most powerful sector in Papua New Guinea the economy is still shaped by forces not presently susceptible to government control or the planning process. There is still a very heavy reliance on foreign investment, private ownership, and primary production for export. The distinctions between 'economic growth' and 'development' are clearly recognised, but there is little evidence that the current strategy can solve the dilemma of the contradictions between the two, which are increasingly expressed not in the size of the gross

domestic product but in the pattern of social change affecting the majority of the population. The distributional goals of the NPEP, with its roots in the eight aims and the National Development Strategy, are clear. The macro-economic framework within which it is attempting to work are also clear, as can be seen from the NPEP assessment of economic prospects for 1979-1982:

> "Provided the key assumptions about investment trends, the rate of decline in Australian aid, wage movements, and recovery in the copper prices prove to be reasonably accurate, there are grounds for cautious optimism about economic prospects over the next four years. The role of economic policy will be crucial in counteracting the effects of expected declines in agricultural commodity prices, and maintaining a steady trend of growth in domestic economic activity. No major minerals or petroleum projects are expected to reach the production stage during the next four years and it is not appropriate to assume for forecasting purposes that construction of any such projects will begin; the impetus for growth will therefore have to come from expansion in agricultural export production and domestic business activity".
>
> (Papua New Guinea,National Planning Office,1978B:p.42)

Table 4.1

Gross Domestic Product Market and non-market at current purchasers values and at constant purchasers values of 1972/73(millions of kina)

	1972/3	1973/4	1974/5	1975/6	1976/7
(i) current values					
Market	623.6	881.1	834.0	879.5	1017.5
Non-market	162.6	159.0	170.0	177.4	184.5
Total GDP	786.2	1040.1	1004.0	1056.9	1202.0
(ii)constant values					
Market	623.6	654.6	657.9	642.2	656.9
Non-market	162.6	161.8	165.7	168.4	172.8
Total GDP	786.2	816.4	823.6	810.7	829.7

(Source: Papua New Guinea, National Planning Office,1978B:pp.36/37)

Table 4.2

Value of main exports 1974/75 (thousands of kina)

Copper Ore and Concentrates	236,659
Copra, coconut oil and other coconut products	44,250
Cocoa	39,127
Coffee	33,544
Timber(logs,sawn and plywood)	12,921
Tuna, cray fish and prawns	11,346
Palm oil	6,785
Tea	3,848
Rubber	2,584

(Source: Utrecht.1978.p.14)

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CHAPTER 5

HEALTH SERVICES IN PAPUA NEW GUINEA

This chapter outlines the system of health provision in Papua New Guinea, focussing on the National Health Plan 1974-1978 and the current state of programmes to meet the basic health needs of the rural population.

Introduction

As discussed earlier, the majority of the populations of the undeveloped, non-socialist countries of the world are in a poor state of health.(1) The patterns of ill-health in Papua New Guinea are typical of such countries; it is now commonly agreed that health services have failed to meet the needs of the majority of the population. In Papua New Guinea, as elsewhere, there has been a clear expression of intent to pay more attention, and devote more resources, to rural areas, but this has not been translated into action to the extent of rural areas receiving the greater part of increases in health spending.(2)

In Papua New Guinea, a high proportion of children suffer from infections and nutritional deficiencies in the early years of life. Large numbers die before they are five, mostly from preventable malnutrition and communicable diseases. Adults

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(1) See Chapter 2.

(2) See Chapter 2 for discussion of the development of basic health services in developing countries.

too suffer from a high prevalence of preventable infections and nutritional deficiencies. The high prevalence and severity of disease stem essentially from the conditions of poverty and underdevelopment in the rural areas, where the vast majority of the population lives. (Bell,1973; Burns,1977; Vines,1970; World Bank,1975) They are primarily agricultural producers; as a group they produce more than they consume. They provide most of the country's exports, much of the raw material for their countries industries and most of the staple food for the urban populations. (Amarshi,et.al.,1979)

Again typically, underdevelopment means that the growing exploiting classes have the bulk of facilities and resources for health care, leaving the mass of the population with very little. (Krause,1977; Navarro,1974; Roemer,1976; Segall,1972; MacPherson,1979). The tendency is for growth of urban services at the expense of rural services and for curative services to predominate over relevant community health programmes. The most urgent need at the present time is for the provision of basic primary health care for the whole population; care that is appropriate for the great majority of the health needs of the people. This demands an approach which combines personal preventive and basic curative care with technical contributions to communal preventive activities. (Gish,1977; Radford,1973)

Very few underdeveloped countries have succeeded in developing health services which serve the mass of their populations; most have found themselves with health systems which move inexorably towards greater concentration of scarce resources and widening disparities in health status and access

to health services. To begin to comprehend this, the health system must be examined in the context of changes brought about by the introduction of capitalism. In addition, the inter-relationships between health, medical care and the political economy, are crucial. (Navarro,1972; Navarro,1974; Review of Radical Political Economics,1977;)

The basic elements of a system of public health and medical services were transferred from the colonial powers to Papua and New Guinea during the period of colonial rule. Determined and designed in Britain, Germany and Australia, rather than the colony itself, the colonial medical system was responsive to the needs of the rulers rather than the ruled.

It is suggested here that the present state of poor health and the lack of health care resources has been brought about by the process described as the "development of underdevelopment", that is, by increasing cultural, technological, and economic dependency on the international capitalist system, which held economic and political control of resources in the colonial era. Thus, the colonial health systems can only be understood in terms of the social, political and economic forces of colonialism. The institutional responses of the colonial governments in Papua New Guinea to the problems of malnutrition and disease were unsuited to the physical realities of a poor country, and to the medical realities of the actual patterns of disease. (Blackburn, 1970; Maddocks,1976; Radford,1972; Scragg n.d.)

The structure of health services developed under colonialism

remained intact until and beyond independence; there was some expansion of facilities but no fundamental change in the nature of the health system.

Health Services and the Colonial Administration

It was in 1884 that Britain claimed a protectorate over South East New Guinea,(Papua) when the Australian State governments agreed to pay the administrative costs of approximately A£ 30,000 per annum. Germany claimed the North Eastern part, (New Guinea) one month later, and so the history of the two areas must initially be considered separately.

The first doctor arrived to live in British New Guinea in 1889; he was the administrator, Sir William McGregor. As Blackburn says of McGregor:

> "In New Guinea he explored widely and did his best to develop the people - he established the native police force and village constables, but did little medicine".
>
> (1970: p.252)

A second doctor, J.A.Blayney, was appointed in 1897, to the position of Resident Magistrate and Government Medical Officer, 'a not unusual dual appointment'. (Blackburn,1970:p.253) Blayney was appointed as Chief Medical Officer when McGregor left in 1899, but he had no medical or para-medical assistance until 1901. According to Blackburn, Blayney's requests for two more Medical Officers were refused by the Colonial Office.

In 1899, Cecil Vaughan was appointed as Acting Government Medical Officer for the Eastern Districts, stationed at Samarai. Vaughan had come to British New Guinea as manager of company which intended to exploit rubber on the River, but the project failed. Although unqualified, he was appointed as Medical Officer on the basis of experience in the Indian Medical Service. The fact that his appointment was to Samarai is of some significance; this was the most heavily populated European settlement in British New Guinea at the turn of the century, and the administration was concerned only with the health of Europeans until 1902.

It was in fact in Samarai that the first provision of medical services for the 'natives' was made in 1902. A 'native hospital' was built in that year for A$ 200, by A.J.Craigen, Blayney's replacement as Chief Medical Officer. A similar sum was spent on a 'native hospital' in Port Moresby, the present capital. A 'European' hospital had been built at Samarai by public subscription but closed due to lack of funds, while the planned 'European' hospital at Port Moresby "could not be built because of shortage of tradesmen". (Blackburn,1970,p.253)

There were then, in the early years of colonial administration, virtually no medical services in British New Guinea. What little did exist was concentrated in the areas of European settlement. As Gunther remarks:

> "There is little point in discussing medical services before 1906, the year in which the Papua Act 1905 came into force. In 1900-1, for example, the medical department of British

> New Guinea(as Papua was then called)spent only £ 1,014, or 1-6 per cent of the total Administration expenditure. In 1906-7 Papuan medical services accounted for £ 4,316, or 4.76 per cent of the Papuan budget: by 1910 it had risen to £ 10,460, or 8.06 per cent.
>
> (Gunther,1972 : p.749)

The early period in German New Guinea was essentially similar. There was one doctor in Finschafen, employed by the German New Guinea Company between 1885 and 1889. By 1907, there were still only two doctors, and no hospital. (Rowley,1957).

> "By 1913 there were six doctors(in German New Guinea) but they had not evoked the confidence of the native population;however the Government and Mission doctors were interested in native health and established a type of medical orderly who did village health work after three month's training".
>
> (Blackburn, 1970:p.253)

This reference to medical services for the rural population is unusual in the accounts of the early years of colonialism; medical services were either for Europeans or for those 'native workers' engaged in the cash economy. (Jones,1911).

Gunther offers a somewhat generous interpretation of the pattern of medical services which emerged as the country was 'developed' in the twentieth century:

> "when the medical service of a colony has very limited funds the establishment of priorities is difficult. The expatriate community, accustomed to ready access to medical attention

> and to hospitals, will press the administering authority to reproduce as far as possible the conditions of the metropolitan country. It is therefore not surprising that in both Papua and New Guinea there was the tendency to establish services in centres of European settlement, and then to extend them to sources of revenue such as the plantations and the mining fields".
>
> (Gunther, 1972: p.748)

In the first quarter of the century large numbers of local workers were engaged in the plantations and goldfields. The extent of sickness and death among these workers was appalling but the response of the administrations was very often one which emphasised a curative approach to epidemics which got out of hand. On some occasions, the response was even less than that. In 1907, the request for a medical officer to be stationed on the Yodda goldfield was refused on the grounds that he would have very little work to do ; in that year the mortality among Papuan miners and carriers was 177 per 1,000. (Gunther,1972:p.749)

At Lakekamu goldfield, in 1910, a death rate of 35 per cent was reported for the native hospital ; the Chief Medical Officer reported 5 European deaths, and that 255 of the 600 natives there had died in 5 months. (Blackburn,1970)

The major cause of death on the Lakekamu goldfield was bacillary dysentery. By 1910-12 dysentery was prevalent on the rapidly expanding cocnut plantations ; as Lambert put it,

> "the isolated white man having lower sanitary standards than the primitive natives".
>
> (Lambert,1928 : p.362)

Not all medical services were concentrated on the European centres, but the major examples of those which were not were the three venereal disease hospitals established in the Trobriand Islands and near Samarai and Rabaul. Veneral diseases were introduced by Europeans, and despite attempts at control, gonorrhea in particular spread throughout both territories by 1925. (Strong, 1926 ; Maddocks, 1973)

Gunther, in assessing the early provision of medical services, argues that:

> "In retrospect, two great weaknesses can now be recognised. There was the failure, especially in Papua to appreciate fully the patterns and trends of disease. In both territories there was a failure to train the local people in medical work, either in sufficient numbers or to an adequate level, so that they could undertake greater responsibilities".
>
> (Gunther, 1972 : p.749)

A crucial example of the failure to appreciate disease patterns, and of the impact of the plantation system, may be seen in the case of tuberculosis. No serious effort was made to find and isolate sufferers until 1939, and the number of officially recorded cases was small. But in 1923 it had been shown by autopsies that 21 per cent of deaths in Rabaul were caused by tuberculosis. Furthermore, tests on plantations showed that while only 5.2 per cent of labourers newly arriving for work had positive tuberculosis test results, the proportion rose to 42.8 per cent after one year's service, to 51.6 per cent after five years, and to 73.3 per cent after ten years. (Gunther, 1972 : p.749) Plantation workers were travelling to

and from their home areas between contracts. Wigley and Russell stated in 1972 that:

> "The present incidence of infection with tuberculosis is directly proportional to the degree and duration of contact with European communities, and to the degree of urbanisation or culture change which has occurred in the native communities..... the association between contact and urbanisation and the incidence of tuberculosis infection is so close that if the geography of an area and its trading and movement patterns are known, it is possible to predict the incidence of infection very accurately".
>
> (Wigley and Russell,1972 : p.642)

On the failure of the administrations to train local people in medical work, Gunther suggests that:

> "The attitude to Papuans and New Guineans playing a more important role in health services may be summed up in the words of a New Guinean Director of Public Health in 1929 who said that natives could be trained as dressers, but not more".
>
> (Gunther,1972 : p.749)

The employment of Papuans for medical work began in 1912 with native helpers accompanying Travelling Medical Officers to deal with epidemics. From this developed the position of Native Medical Assistant, and in 1922 a definite policy of training was implemented. (Calov,1929) They were used particularly for the treatment of yaws but Blackburn states that "By 1930 they were making independent patrols and reporting in English". (1970 : p. 254) In New Guinea, the German administration introduced a system of medical 'tul-tuls'

who were medical orderlies in the rural areas. Both these schemes may be seen as the origins of the aid post orderly system.(3)

As Gunther points out, the low level of education offered to local people was a great barrier, but in 1933 twelve educated Papuans were sent for six months training at the School of Public Health and Tropical Medicine at the University of Sydney. (Jinks et.al. 1973: pp 132-134) There is a telling parallel with the contemporary situation in that "most of them preferred on their return to work as clerks". (Gunther,1972 : p.749)

By 1936 there were fifty Native Medical Assistants and about fifteen native hospitals, including those operated by missions. In 1935-6, there were thirteen Administration medical officers, two doctors were in private practice, two were employed by goldmining companies and there were five mission doctors. (Gunther,1972).

Until the Second World War then, there was some development of medical services but these were extremely uneven in their distribution, being concentrated in areas of European settlement and cash economy production; mission services were primarily located in coastal areas. Although some training had been given to local people, the medical services available to the

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(3) See Chapter 6 for discussion of the aid post orderly. For details of the German scheme, see Rowley (1957).

overwhelming majority of local people were minimal. Both government and mission services were almost entirely curative and hospital-based ; the major amphasis in programmes of treatment for local people was the control of epidemic diseases. As noted earlier, a large part of the disease treated was the result of European exploration, settlement and exploitation, with venereal disease and dysentery as major examples. There were some examples of campaigns against major health problems and here the efforts to eradicate hookworm and yaws may be cited. (Cilento,1927; Cilento,1928). These campaigns were marginal, however, to the sum of health provision in the inter-war years. The paucity of services in this period was noted in the 1974-1978 Health Plan:

> "Before the last war, services were limited in both distribution and effectiveness, although attempts were made to provide medical care to village people through patrolling"
>
> (Papua New Guinea,Department of Public Health, 1974 : p.29)

Mair, writing in 1948 on the policies of the Australian administration prior to the war, was rather more critical:

> "....until a few years before the Japanese occupation, hospitals for natives were concentrated in areas of European activity rather than those of dense native population, while the medical treatment of native labourers is obviously to their advantage as well as to that of their employers, this does suggest a certain disproportion in a territory purporting to be administered on the principle of trusteeship. The total number of natives treated at hospitals in 1938-39 was 30,000, or one twenty-first of the enumerated native population. The total number of Europeans

> treated in Government hospitals was 1933, or nearly one-third of the white population".
>
> (Mair,1948 : p.180)

There can be no doubt that the dominant purpose of medical services was to enable the development of colonial production, both in mining and plantation production. (Chinnery,1923) Services were provided for native labour and to make conditions more tolerable for Europeans. The attempt to control malaria is perhaps the major example of the latter. (Black,1959; Gunther,1974). There can be no doubt that many medical officers worked extremely hard in very arduous conditions ; they were frequently in conflict with both business interests and the administration over the effects of colonial exploitation on the health of Papua New Guineans. More often than not, however, they shared the dominant view that economic development was 'natural' and that the 'uncivilised' native population would only achieve 'decent standards' by adopting European customs and habits. Any interest in the specific health problems of the local people tended to reflect a fascination with the exotic. (Lambert,1942)

According to Ryan:

> "For Papua New Guinea itself the second world war was the most cataclysmic event in the country's whole history.....changes occurred or were set in motion which far exceeded in their effects the coming of the white man (which had been local and gradual) or the results of any natural catastrophe of disease or volcanic activity. Hunger,hardship, captivity and violent death were the lot of many of the indigenous people, for whom the war was

> an almost unrelieved disaster. Yet nearly all the changes, which count today as 'progress' stem in some way from World War II and its aftermath".
>
> (Ryan,1972 : p.1211)

The dual effect of the war on Papua New Guinea is important in relation to health services; on the one hand there was appalling suffering but on the other the basis for post-war development was laid by the wartime administration. During the war, medical services were taken over by the Army through the Australian New Guinea Administrative Unit(ANGAU), and for some time:

> "Attention to the health needs of the ordinary people almost ceased, the peace-time anti-yaws and anti-hookworm campaigns were suspended".
>
> (Gunther, 1972: p.750)

Staff of the small pre-war medical departments who were of military age were assigned to purely military duties, particularly Intelligence. ANGAU included some medical personnel in its Field Service and in 1942 a separate Medical Service was created consisting of two medical officers and twelve medical assistants. (Ryan,1968) Gunther acknowledges that in the later years of the war ".....increasingly effective health measures were provided for those natives employed as carriers and labourers by the armed services...." (1972:p.750) Mair, however, attaches much greater importance to the establishment of medical services by ANGAU in the latter part of the war:

> "In the sphere of health, a period during which the cost of the war to the people of New Guinea was high was later partially offset by the expenditure of money on a scale which only the resources of the army could have made possible".
>
> (Mair 1948: p.197)

In 1943, training courses for both European and local medical personnel were organised and by September,1944, there were 10 medical officers, 113 European medical assistants, and 453 'native medical orderlies'. There were base hospitals for local people at Port Moresby and Lae, with full army equipment, and fifty-three other hospitals operated by ANGAU. The significance of the wartime administration of medical services must be seen not so much in what was done during the years of the war, but in the pattern of services left when the war was over. Although primarily directed at the armed services and those Papua New Guineans assisting them, ANGAU medical services were comprehensively organised and directed over the whole area controlled by the allied forces. Facilities were established in locations which had not previously had services at all, and the programme of training local people as medical orderlies was on a much greater scale than anything which had gone before. It was of course avowedly curative in nature which is perhaps of importance in understanding the pattern of services which succeeded it.

After the war six Native Medical Assistant Schools were established with the aim of "placing a thousand native medical assistants in a thousand villages". (Gunther,1972:p.751)

These workers later became the aid post orderlies.(4)

In 1946, Papua New Guinean students were sent to the Central Medical School, in Fiji, for a five year course which qualified them as Native Medical Practitioners, later described as Assistant Medical Practitioners, or Assistant Medical Officers. (Pathik and Goon,1978). Although much inferior in status and certainly remuneration to medical doctors recruited from overseas, these graduates did virtually the same work as the doctors, particularly in rural health centres. (Calov 1955)

A programme of hospital construction began in 1947, and throughout the 1950's a number of sub-district hospitals were established. When the major hospital was established in Port Moresby in 1957 it had two wings; the differentiation was technically between those whose paid fees and those who did not, in fact the division was racial.

In 1960 there were 94 hospitals, the majority of which had separate paying and non-paying wings. (Gunther,1972:p.752)

Hospital construction continued through the 1960's, with the emphasis on major district and base hospitals which had, in addition to provision of basic curative services,training functions and the provision of "increasingly advanced and complex treatment at the specialist level". (Papua New Guinea, Department of Public Health,1974:p.29)

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(4) see Chapter 6

Although there was provision for aid posts in the 1950's and 1960's staff at this level were, as noted earlier, part-time and resources for these facilities were extremely limited; they were almost everywhere the responsibility of local authorities and missions. Central government emphasised hospital-based medicine and in particular the recruitment, and later the training, of doctors. A great deal was made of the opportunities for doctors, particularly those with little, or no, experience. (Calov 1955)

In 1962 the Trusteeship Council reported warmly on the strategy being followed by the colonial administration:

> "Noting the views of the 1960 visiting Mission that targets in the field of public health for the next five years generally are realistic, that progress made in the field of public health has been admirable, and that the high standards of hospital construction and administration which are being set are well justified, and are very much to the credit of the Administration, commends the Administering Authority for the progress being made in the field of public health".
>
> (Gunther, 1972: p.756)

There can be no doubt as to the achievements of the Administration in hospital provision; by 1964 there was a ratio of one hospital bed for every 186 of the population, which compared favourably with many European countries. (International Bank for Reconstruction and Development,1965)

But there were great costs; the financial cost was emphasised by the House of Assembly Committee on Public Accounts:

> "After the Second World War, the Department of Public Health was formed, and within a few years, had managed to bring into being a quite extensive curative health service. By 1947, the Department was operating 55 hospitals, which, in 1966, has been increased to 103.....This was not achieved without great expense. During the 1950's the Department received an average 15-20% of the total budget".
>
> (Territory of Papua and New Guinea, 1967:p.7)

Although the proportion of the total territory budget spent on health services had declined to 12 per cent in 1963-64, the 1964 International Bank for Reconstruction and Development Mission devoted considerable attention to what it considered to be 'unrealistically' high levels of expenditure on health services. On the hospital programme the mission certainly did not share the views of the 1962 Trusteeship Council report:

> "The Mission believes that there has been over-building of hospitals and an extension of hospital facilities at a rate faster than could be properly staffed and effectively used. The Mission also believes that the adoption of Australian standards for the larger new hospitals was not appropriate in the conditions: these buildings are luxurious, unrelated to the standards of most of the people, and the costs are very high, much higher than the Territory without substantial aid has any prospect of being able to afford in the future".
>
> (I.B.R.D.,1965:p.338)

As noted earlier, the I.B.R.D. development strategy for Papua New Guinea was not eventually accepted in total, although the principle of rapid economic growth based on export production remained central to later development strategies.(5) On health,

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(5) see Chapter 4

the Mission's report was concerned above all that Papua New Guinea must live within its actual and projected means. Virtually the whole discussion of health services was in terms of costs, rather than effectiveness. The Mission recommended that there should be no increase in hospital capacity for five years; that charges, in cash or kind, should be introduced at all levels of health service provision, and that rural health centres should be the basis for the development of both curative and preventive services. (I.B.R.D. 1965: pp.340-341) With the emphasis so strongly on the health centres, the Mission saw little potential for development of the aid post system and indeed, argued that

> As more rural health centers are established, the present system of aid posts will gradually become subordinate to the health center program".
>
> (I.B.R.D.,1965;p.342)

Essentially, the Mission felt that health took too large a share of the Territory budget and that this share should decline:

> "The health services have now, by the standards of most undeveloped countries, been brought to an advanced level and, in the light of the Mission's view that future government spending should emphasise economic development rather than social services, the Mission recommends that spending on health should grow much more slowly than in the past".
>
> (I.B.R.D.1965: p.352, emphasis added)

On the pattern of health expenditure, the Mission stressed

the importance of preventive programmes, although with qualifications:

> ....."the administration's (preventive) targets are on the optimistic side without an excessive expenditure of funds. The Mission fully endorses the department's intention to increase preventive medicine's share of total health expenditure by technically sound steps".
>
> (I.B.R.D. 1965: p.347)

However, with a prescience not found in most of their report, the Mission noted that:

> "the hospital and medical program is expensive and absorbs a substantial part of the total budget. The cost will continue to climb and will take a greater proportion of the budget unless action is taken to hold the line on the medical program".
>
> (I.B.R.D. 1965: p.339)

In 1968, it was acknowledged that:

> "Although the general principles suggested by the [IBRD] Mission have been applied, total public expenditure on health has increased more rapidly than foreseen by the Mission, owing partly to increases in costs which the Bank Mission did not take into account. Nevertheless, the proportion spent on health has been reduced from 12.3 per cent in 1963-64 to about 10.9 per cent in 1967-68".
>
> (Territory of Papua and New Guinea, 1968:p.93)

It was argued that the proposed five-year health programme gave special emphasis to preventive medicine, medical training

and community health education, as recommended by the 1964 Bank Mission. But the qualification of this commitment was significant:

> "At the same time, the programme is designed to maintain a reasonable standard of general medical services which, although concerned primarily with curative medicine, also provide many of the hospital and other facilities required for preventive medicine and contribute to health education through normal contact with the people".
>
> (Territory of Papua and New Guinea, 1968: pp.93-94.)

There is only one, general, reference to 'other facilities' in the 1968 plan:

> "Although expenditure through medical services provides important facilities necessary for the preventive health programme, the greatest proportion of medical expenditure is directed towards curative services such as hospitals, health centres and rural aid posts".
>
> (Territory of Papua and New Guinea,1968:p.96)

The only specific discussion of medical service facilities was concerned with the expansion of hospital services; there was no discussion of health centres or aid posts.(6)

Throughout the 1960's, the health services continued to be dominated by the hospitals. Despite the very many statements made regarding the importance of rural services and preventive health the bias was very clearly to urban, curative services.

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(6) Aid post orderly training was stopped in 1967 and did not restart until 1971: see Chapter 6.

Although there was some extension of rural services, the relative position of the rural areas grew worse as the Administration attempted to reduce the growth of total health expenditure while maintaining, and even expanding its sophisticated curative facilities.

In the mid-1960's, the trends were recognised but reaction to them by the health department was mixed; against the desire to implement sophisticated, western, curative services there were doubts as to the viability of such a policy. The doubts were still, however, related to finance and not to the appropriateness of hospital-based medical services:

> "The community has shown continued interest in health activities and hospital services. Demands and requests are coming in from all parts of the county, sometimes from the most remote places which a few years before, did not even have an Aid Post. This should be considered as a good sign and a recognition of the value of health services, by the people. The question is : Will we have the financial ability to meet all expectations in the future?"
>
> (Territory of Papua and New Guinea, Department of Public Health, 1966: p.14)

Preparation for Self-Government and Independence : the background to the National Health Plan.

In March, 1971, the Select Committee on Constitutional Development, which had been established by the House of Assembly in June, 1969 recommended to the House that the development of Papua New Guinea should:

> ".....be geared to preparing the country for internal self-government during the life of the next House of Assembly".
>
> (Territory of Papua and New Guinea. House of Assembly, 1971: p.2)

By the middle of 1971, that recommendation had been agreed by the House of Assembly, accepted by the Australian Government, and welcomed by the United Nations Trusteeship Council.(Wolfers. 1976)

Wolfers argues that the Australian administration of the 1960's has been marked by a "benevolent paternalism of government at all levels" (1976:p.3.), and that beneath the apparently open, general policy:

> "there was the undertow of practice, in which the Australian Government and its territorial administration seemed to be primarily concerned with maintaining official control over the process of decolonialisation in Papua New Guinea".
>
> (1976: pp1-2)

When self-government came, there was a desperate lack of Papua New Guineans in senior positions; inevitably, expatriate staff continued to dominate government departments. If new policies, including health policies, were to be formulated and implemented the stranglehold of colonialism would have to be broken; the administration inherited by self-governing Papua New Guinea had little chance of even beginning to do this:

> ...."the current Public Service structure was one designed to implement policies that had

> been made elsewhere, rather than for internal ministerial government. The Ministerial and Assistant Ministerial Members perched precariously atop their various specialist departments, advised by a predominantly expatriate public service.....In Papua New Guinea, the various departmental heads seemed to be better equipped for day-to-day and specialist administration than for the policy-oriented, generalist approach of a ministry. However, the possibility of reconstructing the current system so as to make the upper echelone more policy-oreinted, and to reserve these areas as far as possible to men who were exclusively committed to Papua New Guinea's government seemed not to have been considered by officialdom".
>
> (Wolfers, 1976: p.24)

For health services, the limitations of the administrative system were not the only, or indeed the major, problems of the transition from colonial administration to self-government and eventual political independence.

The health sector was subject to the same limitations and distortions under colonial rule as other sectors of the political economy; widespread ill health and especially chronic malnutrition were not primarily internal problems, just as increasing inequality was not. They were products of colonial history, continuing dependence, and changing social relations of production.

The structure of dependency created by colonialism was ultimately the determinant of both ill health and health services. Papua New Guinea, in common with other colonies, was established as an exporter of primary products before domestic needs for food and consumer goods could be met; capitalist relations of production imposed by the colonial government turned land, labour and wealth into commodities, which distributed the balance between population and resources; and political domination reinforced a social class

structure in which Europeans at the top controlled decision making while Papua New Guineans at the bottom were disenfranchised. In this situation there was little reason to expect either that modern health care could offset the process of emiseration or that health services would conform to egalitarian patterns of distribution or be governed by other than capitalist relations of production.(7)

In 1973, when Papua New Guinea effectively gained self-government, the system of health services was that created by colonialism. In the early 1970's there had been some awareness of the inappropriateness of that system and the need to produce policies and programmes relevant to Papua New Guinea.

In general terms, the hospital-centred programmes of the colonial administration were attacked on the grounds that they denied services to a large proportion of the rural population; it was argued that the patterns of morbidity and mortality in Papua New Guinea were such as to demand an emphasis on low-cost basic health services. (Bell,1973A; Biddulph,1972; Black, 1970; Hocking, 1974; Radford,1972; Radford, 1973; Scragg,1971; Taureka,1973).

Many of these critiques and proposals for new policies drew heavily on the experiences of the countries of East and Central Africa and in particular on the work of Professor Maurice King(8)

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(7) For discussion of the political economy of Papua New Guinea see Chapter 4, and Amarshi,et.al.,1979.

(8) King's book 'Medical Care in Developing Countries' (King, 1966) was cited by many of these authors.

There was a realisation that although the general patterns of ill health were known, one of the profound effects of the system of health services which had developed was that available data very often reflected the extent and nature of health services rather than the health needs of the mass of people. A good deal of emphasis was put on the importance of establishing both a more useful picture of health problems in the country, and systems of data collection which could be used to monitor future programmes. (Bell,1972; Bell,1973C; Maddocks and MacKay,1974; Vines,1970).

There were some doubts cast on the benefits to Papua New Guinea of doctors imported from overseas and, in sharp contrast to the dominant views fifteen years before (Calov 1955), questions were asked regarding the need for doctors at all in basic health services. (Bussim,1972; Calvert,1972; Vaughan,1971).

As noted earlier, self-government would mean that policies would be formulated in Papua New Guinea ; the health department would no longer simply implement programmes under ultimate direction from Canberra. There was some awareness of the difficulties of comprehensive health planning in Papua New Guinea but little analysis of these difficulties in relation to the emerging patterns of political, social and economic power. (Allbrook,1972; Bell,1973B; Hellberg,1973; Ring,1972.) The position of the missions in the system of health services was seen as a possible source of difficulty, but only in terms of co-ordination and integration of services. There was not, in the published work at this time, any doubt as to the continuation of extensive mission health services and of government

subsidies to those services. (Binns,1972; Hellberg,1973B; Strang,1973)

Perhaps the most important contribution to the debate in the early 1970's was that made by Radford in the 1971 'Waigani Seminar' (Radford,1972) Radford was then Associate Professor in the University of Papua and New Guinea Faculty of Medicine, and later became Professor of Community Medicine. The focus of his 1971 paper was rural health services and the health needs of the mass of the population. He began with the crucial observation that high national aggregate figures for health spending may have little or no meaning for the majority of people:

> "Although almost $10 per head per annum is allocated for all health services in Papua New Guinea on a national basis, at the sub-district level this fell to about $2 per head".
>
> (Radford,1972: p.250)

Drawing heavily on King's 'axioms on health care for developing countries' (King,1966; 1.7, King,1970:p.344) Radford argued that the legacy of colonialism in Papua New Guinea would follow the pattern set "all over the decolonised world". (1972:p.251), with inappropriate emphasis on expensive western-style hospitals. Health services, Radford argued, are best received closest to the people they serve; the hospital utilisation data he used demonstrated what had been shown elsewhere, that these facilities were used by a very small proportion of the population from within a relatively small area.

The disease pattern in rural areas was such that, in Radford's view:

> " a properly trained aid post orderly, or village health orderly, is potentially capable of curing approximately three-quarters of all fatal illnesses at a fraction of the cost of hospital care."
>
> (1972:p.256)

To avoid the worst features of health systems in other 'decolonised' countries, Radford argued for a 'best chance pathway' which would redesign the Papua New Guinean health services from the bottom up; he put considerable emphasis on the aid post orderly and on the involvement of local communities. He proposed that the construction of expensive hospital buildings should be stopped immediately, as they resulted in:

> "the extension of health care to a privileged few at the expense of some care for many".
>
> (1972: p.263)

In relation to mission health services, Radford noted their significant contribution in rural areas, but pointed out an important feature of their contribution to the legacy of colonialism from which an independent Papua New Guinea would have to build its health services:

> "One unfortunate feature of mission medical services is that they have established in many remote areas hospital buildings of sophisticated design and equipment. While they are built and maintained from overseas sources one can only regret that the money is not being used to its best advantage, but after independence it will be unfortunate if a high proportion of national health funds are channelled into the maintenance of such structures".
> (1972:pp 270-271)

Radford was essentially applying the experience of other developing countries, and in particular the countries of Eastern and Central Africa, to the situation in Papua New Guinea. He suggested that there were many signs that the African trends would be repeated; despite the mass of evidence in support of a system of basic health services related to the dominant patterns of morbidity and mortality, he was ultimately pessimistic:

> "There is a very grave danger of administrations implementing policies based on the pressures of politicians and professionals expressing the people's 'wants' in terms of their own immediate political and professional security rather than the actual needs of the population".
>
> (1972: p.258)

The National Health Plan was produced against the background of the criticisms of the early 1970's, and indeed many of the critics, including Radford, were involved in its preparation. It was presented as an attempt to overcome the problems of the existing health system, but the rhetoric of its boldly-stated aims was quite clearly at variance with the realities of the emerging political economy within which the plan was to be administered. (MacPherson,1979)

The Papua New Guinea National Health Plan 1974-78

The plan was produced in 1974, and reflected the development strategy of the 'Eight Aims'[9]; it stated clearly an awareness of many of the issues outlined;

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(9) see Chapter 4 for discussion of the 'Eight Aims'.

> "In recent years, it has become widely recognised that equitable, meaningful and effective distribution of health resources in a developing country depends upon the application of certain principles. These principles differ in many respects from those currently practised in Western Medicine and are designed to ensure that scarce resources applied to maximise the social and economic benefits of health services for all the people .....(although) certain principles of health care have been recognised and practised for a long time in country.....there has not as yet, been a systematic attempt either to define or implement all relevant principles appropriate to the provision of health services in this country. This has led to an unplanned approach which is vulnerable to professional, political and self interest demands."
>
> (Papua New Guinea, Department of Health, 1974: p.48)

The plan laid down principles "appropriate to the provision of health services" and stated that these were the bases of the strategy outlined in the remainder of the plan. The stated principles drew heavily on King's'axioms of health care', the influence of which has already been noted. Indeed the health plan used several of them directly, and paraphrased others. The plan argued for an emphasis on low-cost basic health services, the importance of prevention and health education, and community participation. The principles were summarised as:

> "1. Expensive health resources are always insufficient to meet either legitimate needs or demands. They must therefore be concentrated in situations where maximal utilisation can be ensured....
> 2. Standards of health services should be provided at a level appropriate to community and national development.....
> 3. Health services are best received when people and communities are involved in decision-making about their quality and

delivery.....

4. Some health care should be provided to all the people as close to their homes as possible.....
5. Health services must be delivered in such a way that they are as fully integrated as possible with all sections of health and other services".

(Papua New Guinea, Department of Public Health, 1974: pp 48-50)

In relation to health care services, the plan repeatedly emphasised that the objective was the provision of basic health services. It argued that all levels of health facility should state this objective; this would involve substantial change in the hospitals:

..."a re-orientation of the role of the hospital away from that of a disease treatment centre towards that of a health care centre".

(Papua New Guinea,Department of Public Health, 1974: p.63)

The pattern of health care facilities was acknowledged as pyramidical, but the notion was expressed of the upper levels 'supporting' the lower levels in provision of basic health care.

Part of the justification for emphasis on lower-level facilities - the health centres and aid posts - were the extreme differences in treatment cost as different institutions. The plan gave the example of treatment for:

"....a typical case of pneumonia(which) is estimated to cost the following:

Aid post	$ 0.50
Health Centre	$ 4.50
District Hospital	$ 37.50
Base Hospital	$100.00

> The outcome in almost all cases is the same. This is due in part to higher overheads in large institutions and to the present tendency for patients who are admitted to district hospitals to be seen automatically, and frequently, by doctors and in base hospitals by specialists, rather than by lower level workers who would accept responsibility for such treatment in a simpler institution. This is imported health care practice...."
>
> (Papua New Guinea, Department of Public Health, 1974: p.65, emphasis added)

The plan accepted then, what the critics of late 1960's and early 1970's had begun to argue - the hospitals drained a huge proportion of resources but contributed little to the health of the majority of the population. This was reinforced in the plan by reference to the maldistribution of health facilities. It was estimated that 10 per cent of the population had no reasonable access to health facilities of any kind; only 23 per cent had reasonable access to a health centre : 16 per cent had access to a district hospital and only 9 per cent to a base hospital. A very small proportion of the population had access to those facilities which were consuming the greater part of health expenditure; most relied on aid posts alone. Considerable emphasis was given to the achievement of an "equitable distribution of health services".

The plan stated as a "national objective" the provision of "a comprehensive health service for all people", with a basic level of services through health centres, sub-centres and aid

posts. Among the problems of rural health services the plan identified:

> "the lower standards of care than in urban areas; the tendency of patients to by-pass aid posts and rural health centres to seek attention at district hospitals;
>
> the mal-distribution of services, some areas being well-served while others, especially in the Highlands, are poorly served;
>
> the difficulty of motivating staff to work in rural areas;
>
> The inadequate care for isolated populations for whom even aid post services are uneconomic;
>
> the low standards of the rural environment and a low level of awareness in the community of the nature of their health problems and lack of support with efforts to solve them;
>
> limited road access and difficulty in obtaining and maintaining transport;
>
> the low rural income with a low level of contribution to health services;
>
> the duplication and overlapping of services provided by churches' health services, both between churches, and between churches and Government".
>
> (Papua New Guinea, Department of Public Health, 1974: p.85)

Although the difficulties of developing basic health services in rural areas were acknowledged, the plan was a very clear statement of principles and priorities which would fundamentally shift the pattern of health provision in Papua New Guinea. Central to this shift was control over the distribution of resources and the pattern of health expenditure. An "entirely new" approach to health budgeting was proposed in which the budget strategy was to be the means for "determining and securing an equitable allocation of resources". (Papua New Guinea, Department

of Public Health,1974:p.51) It was noted that in the past the allocation of health department resources had been determined largely by "historical demand for services":

> "Thus those areas of expenditure which were given large amounts of money in the past usually continued to receive an even greater proportion of the budget".
>
> (Papua New Guinea Department of Public Health, 1974:p.51)

No functional costing had previously been done; it was argued that the costing exercises undertaken in preparation of the plan had, for the first time, revealed in detail the wide inequalities in the distribution of resources. Under the new plan, it was argued, the budget was no longer to be simply an accounting exercise but "the strategy by which priorities will be decided".

Several important features of the existing pattern of resource allocation were identified, and attributed to 'demand allocation' and the lack of any clear, policy-derived, priorities. The overall level of health expenditure, heavily dependent on overseas aid, was seen to be too high and there was considerable doubt expressed as to:

> "Whether this country can afford the present level of expenditure on health-care services of which larger hospitals are a major component".
>
> (Papua New Guinea, Department of Public Health, 1974: p.53)

"Demand budgeting", the plan argued, had determined allocation in the past and this demand was primarily from "expanding large

institutions" and from the "rising expectations of an urban elite".

An effect of the previous system was that the maintenance of existing services was the major determinant of health expenditures; no priorities or commitments had been assigned to services and programmes designed to improve health rather than maintain services:

> "Demand type budgeting tends to permit only a residue of expenditure on those services after the expanding claims of hospital services have been satisfied".
>
> (Papua New Guinea,Department of Public Health, 1974: p.53)

There were massive inequalities in resource distribution within the country, as indicated by per capita expenditure. Between districts the range was $2.85-$13.79, and between rural and urban areas $4.22 - $19.84:

> "The evidence suggests that these inequalities are tending to enlarge under the present system of demand allocation".
>
> (Papua New Guinea,Department of Public Health, 1974,p.53)

The National Health Plan therefore demonstrated not only that existing health provision was both inaccessible and irrelevant to the majority of the population, but that the development of a health provision in Papua New Guinea based on the concept of 'basic health services' would demand major,

and controlled, shifts in the pattern of health expenditure in contradiction to powerful, well established, forces which were determining the allocation of health resources. The move from 'demand-allocation' to 'budget strategy' was the most significant expression of the new desire to plan health services for the benefit of the whole population.

The principles of the National Health Plan were clear; they were embodied in the projected expenditure allocations for the plan period. For the first time, the health budget was divided into functional, not administrative, divisions and this was stated to have several advantages. First, separating urban from rural services would ensure that "expenditure on rural health is identified and extended". (Papua New Guinea, Department of Public Health, 1974: p.54, emphasis added).

Second, hospital expenditure was separated out as a "largely urban service", this would ensure that hospital expenditure could be "defined and contained"(Papua New Guinea, Department of Public Health, 1974: p.54, emphasis added)

Third, health care services, concerned largely with the maintenance of health, were separated from health improvement programmes.

This attempt to control expenditure was far from comprehensive; a significant example of its weakness was in relation to expenditure on drugs. As late as 1978 the Department

of Health had no accurate figures for drug expenditure, although they were attempting to correct this, and other ommissions, with changed accounting procedures. (MacPherson. 1978:p.29)

The principles for allocating expenditure in the plan period were clearly stated; increasing resources were to be given to health improvement programmes, to rural areas and to low expenditure districts. The plan projected expenditure through to 1978/79; these projections show clearly how the emphasis of the health budget was intended to change over the five-year period. (Table 5.1)

It must be emphasised that the projected change in the distribution of health expenditure assumed, correctly, an increasing total budget for health. Thus, in health care, it was intended that rural health would take a larger share of the increased spending on health care, almost maintaining its share of the total health budget while hospitals and urban health care would suffer a relative decline while still increasing in absolute terms with the growth of the total health budget.

It is clear from Table 5.1., and this is emphasised throughout the National Health Plan, that the objective was a shift in the pattern of health expenditure. The most important features of this shift were, first, health care would be reduced in favour of health improvement. Second,within health care, rural health care would slightly increase its chare relative to urban health and

TABLE 5.1

National Health Plan:

Projected Health Department Expenditure by Function as percentage of total budget. 1974/75 and 1978/89.

	preliminary expenditure 1974/75	projected expenditure 1978/79
	%	%
Health care (total)	69.4	63.0
Hospitals/urban	40.8	36.0
rural	28.6	27.0
Health Improvement(total)	15.6	23.3
Malaria	10.5	16.6
Other programmes	5.1	6.7
Medical Training	7.6	7.1
Policy and Administration	7.4	6.6

Source: Papua New Guinea, Department of Public Health, 1974: p.55, Table 8.2.

hospitals. Third, medical training would take a slightly smaller share of the total budget, and fourth, expenditure on policy and administration would similarly be slightly reduced as a proportion of the total budget.

In addition, there was to be a shift in the distribution of expenditure to reduce inequalities in regional and district per capita expenditure:

> "Reference has already been made to the inequitable distribution of expenditure. Inequalities are as inevitable as the variation in the concentration of population

> to which they are related. However, it is evident that change is required in the system of distribution of funds towards one which better serves the needs of improved health for all people. This aim is required both by Government policy as well as by the objectives of this plan".
>
> (Papua New Guinea, Department of Public Health, 1974: p.56)

It was proposed that the inequalities between districts, and between urban and rural areas, would be progressively narrowed by concentrating increases in expenditure on below-average districts and holding hospital expenditure constant, except in areas of very low expenditure. The political implications of shifting resource allocation in the direction of basic health service provision in rural areas were acknowledged, but considerable faith was expressed in the political strength of the rural majority:

> "....it would seem that at present the main political pressures are coming from the increasing expectations of rural residents and from their awareness of the disparity between services provided to them as compared with those in the towns..... the rural electorates have a considerable majority in the House of Assembly".
>
> (Papua New Guinea, Department of Public Health, 1974: p.61)

The National Health Plan was very clear in its stated objectives; these were listed in order of priority as thirteen 'National Health Objectives'. Provision of hospitals came tenth in the order of priority and the top of the list was:

> "Provision of basic health services through health centres and aid posts, equitably distributed for all the people, to provide for personal and family care including treatment of common illness, promotion of self-care, immunisation, child care, maternal care, family planning and disease surveillance".
>
> (Papua New Guinea, Department of Public Health, 1974: p.47)

The plan was accepted by the National Executive Council in June 1974; but despite the determination expressed in the plan, trends during the next five years were far from those envisaged.

Trends in Health Expenditure and the Distribution of Health Services. 1974-1978.

Despite the emphasis given in the plan to the monitoring of health service development no information was published by the health department itself regarding the progress of the plan until late in 1978. At that date, the Annual Report for 1974/75 was published, which noted the implementation of the plan and the difficulties of operationalising it during its first year. (Papua New Guinea, Department of Public Health, 1978).

Similarly, a Central Planning Office review of government policy, published in 1975, noted problems in the implementation of the National Health Plan. Noting that one of the main objectives of the plan was the "provision of basic health services equitably distributed to all the people" (Papua New Guinea, Central Planning Office, 1975 : p.175), several barriers to the implementation of this goal were identified:

> "The (Health) Department is experiencing serious problems in obtaining staff with required Management skills to direct resources effectively towards the objectives of the health plan.....the building of new health centres, health sub centres and aid posts in many districts is being slowed down drastically by lack of funds for construction.....Of the planned K265000 rural programme funded through the works vote only K20200 was spent(in 1974-75).
>
> (Papua New Guinea, Central Planning Office, 1975: pp.177-178)

Failure to implement the planned expansion of rural health services was blamed largely on the fact that capital funds were controlled by Area Authorities and Local Councils. These bodies, it was argued, often allocated funds to economic and other activities 'leaving health priorities out completely'. This illustrates a recurrent theme in explanations of the failure to implement national health policy; central government in general, and the health department in particular had little or no control over crucial areas of resource allocation, particularly in rural areas.

The Central Planning Office review of 1976, at the halfway stage of the National Health Plan, again noted a failure to achieve targets in rural health service provision and health improvement programmes. Although some new health centres and aid posts had been built, by far the greater part of new building had been of hospitals and urban health centres. In 1975/76, only K24000 of the K1,100,000 expended on capital works was for rural health centres. (Papua New Guinea, Central Planning Office, 1976: p.167)

Late in 1976, the government published it's White Paper on national development strategy.(10) Discussion of health services as such occupied only half of one page, but the dominant themes of the document as a whole were relevant to the development of health services. Concern was expressed at growing inequalities in resource distribution and access to services; again the gap between urban and rural areas was emphasised:

> "There are considerable inequalities in the distribution of government services: urban areas are best provided and some provinces far better served than others. These inequalities are becoming more entrenched."
>
> (Papua New Guinea, Central Planning Office, 1976B: p.13)

The brief section specifically dealing with health services declared the government's continuing commitment to the principles of the National Health Plan. It was noted that rural health services provided by the churches were still unco-ordinated with government services and that efforts were being made to rationalise the two systems. Doubts had previously been expressed by the missions themselves as to the appropriateness of their medical activity in the country, and in particular the injustice of mission hospital provision. (Christian Medical Commission, 1973; Strang,1974).

There was then, in the development strategy, no change in

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(10) See Chapter 4 for discussion of this document.

health policy; if anything, the policy of 1976 was an even stronger statement of the principles of 1974:

> "The strategy outlined in the National Health Plan will continue to be followed: attempting to equalise services between provinces, providing basic services through health centres and aid posts and referring cases requiring more specialised attention to hospitals. Future expansion of health services will concentrate on improving service to rural areas. No new Major hospitals are planned and there will be only limited expansion of existing hospitals."
>
> (Papua New Guinea, Central Planning Office, 1976B: p.30)

Throughout the life of the National Health Plan, there was continued support given to the principles and objectives of the plan and the shifts in expenditure that these demanded. In April 1978, an analysis of health department expenditure to the end of 1977 demonstrated that virtually no progress had been made in shifting the pattern of expenditure as intended. (MacPherson.1978). The results of this analysis, together with tentative figures for 1978 and 1979, are given in Table 5.2.

Before discussing the pattern of expenditure revealed by this analysis it must be stressed that it is becoming increasingly difficult to make meaningful comparisons between health department expenditure in different years. There are several reasons for this.(11) First, the department has, from 1978, changed the functional breakdown of its expenditure to give more detail; this

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(11) I am grateful to Mr.J.Assimani, Budget Section, Department of Health, for discussions of this issue.

TABLE 5.2 Papua New Guinea, Department of Health Recurrent Expenditure, by Function, as Percentage of Total 1973 to 1979.

FUNCTION		1973/74	1974/75	1975/76	1976/77	July/Dec 1977	1978	1979
1.	Health Care							
	-Hospital and Urban	43.8	42.2	44.3	46.6	46.1	40.6	35.3
	-Rural	25.0	25.8	27.2	25.0	26.6	28.7	34.1
	-All Health Care	68.8	68.0	71.5	71.6	72.7	69.3	69.4
2.	Health Improvement							
	-Malaria	9.2	10.1	10.5	9.7	7.6	8.2	7.3
	-Other Programmes	4.9	3.4	3.1	3.4	4.2	6.7	7.6
	-All Health Improvement	14.1	13.5	13.6	13.1	11.9	14.9	14.9
3.	Medical Training	7.7	6.8	7.4	5.8	7.9	7.5	9.0
4.	Policy and Administration	9.4	11.7	7.6	9.5	7.4	8.3	6.8

Source: 'Estimates of Revenue and Expenditure' for the years ended 30th June 1975, 30th June, 1977, the financial period ending 31st December, 1977 (July-December 1977), 31st December, 1978, and 31st December 1979. Port Moresby: Government Printer.

Notes: 1. Until 1977 the financial year ended 30th June. From 1978 it ended 31st December.

2. 1973/74 approximate
1974/75 actual
1975/76 actual
1976/77 actual
July-December, 1977 estimated
1978 estimated
1979 appropriation

3. 1978 figures exclude one province. 1979 figures exclude three provinces.

has involved the creation of new expenditure categories and thus strict comparability is not possible. In Table 5.2 the earlier functional classification of expenditure has been maintained by allocating expenditure to the 'most appropriate' existing category. The figures for 1978 and 1979 therefore, and particularly those for health care, should be treated with caution, especially with regard to the proportions for 'urban' and 'rural'.

Secondly, and a source of increasing problems for an exercise of this kind, the creation of provincial government has involved the transfer of responsibility for health spending of certain kinds to the new provincial authorities. For rural health care, all expenditure is now channelled through provincial authorities. Those provinces which have attained full provincial government status control their own health budgets for virtually all functions. For these no breakdowns of expenditure by function are presently available and they are thus excluded from the latest figures(1 province excluded 1978, 3 provinces 1979). As more provinces achieve this status, any attempts to analyse total national expenditures will become extremely difficult.

A third factor which increasingly undermines the usefulness of this analysis of health expenditure as an indicator of the national allocation of health resources is the NPEP(National Public Expenditure Plan) system operated through the National Planning Office.[12] This controls a small, but growing

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(12) see Chapter 4 for discussion of the NPEP.

proportion of the national budget and covers both departmental and provincial projects, many of which are specifically health projects or which have a health component.

A preliminary analysis of the projects approved for 1979 suggests that for that year at least, although this allocation of expenditure complicates the picture it does not fundamentally shiftthe pattern as outlined in table 5.2.0f a total of K2.5m allocated to projects identifiable as 'health projects' K1.6m is for 'hospital improvements'; the effect of adding these NPEP allocations to the various functions listed in table 6.2 is minimal - the largest effect is an increase in the proportion of the total expenditure which is spent on 'hospitals and urban health care'. (MacPherson,1979)

As can be seen from table 5.2, the targets of the National Health Plan (table 5.1) were not met by the end of the plan period. In itself, this would not be surprising; rarely, if ever are such planning targets achieved exactly, especially over such a long period. What was disturbing was that the trends in health spending were in precisely the opposite direction to those so vigorously argued for in the National Health Plan and reaffirmed so many times since. Up to the end of 1977, 'health care' had increased its share of the budget while 'health improvement' had declined as a proportion of total spending.

The National Health Plan had identified a tendency for urban health care services, and particularly hospitals, to

expand at the expense of rural services,and saw this as being the result of higher levels of demand, in both quantitative and qualitative terms,from the growing urban population. The plan made a series of firm commitments, as noted earlier, to more rural,community oriented health care services "in order to reverse this trend". (Papua New Guinea, Department of Public Health, 1974: p.10 emphasis added).

Health Care expenditure was planned to rise, from $12.5 million in 1973/74 to $17.5 million in 1978/79. The rise in expenditure certainly occurred; to K 23.8 million in 1976/77 and K 26.4 million in 1978.(13) The plan, however, stated that 'most of this increase' would be directed towards rural services; the reverse was in fact the case. Of the K10.4 million increase in expenditure on health care between 1973/74 and 1976/77, 67 per cent had gone to 'hospitals and urban' and 33 per cent to 'rural'. (MacPherson,1978.p.8) In other words, not a reversal of the trend deplored by the National Health Plan but a continuation of that trend.

Thus, within health care, there was no shift urban health and hospitals to rural health. The last complete year for which figures of actual expenditure were available, 1976/77, shows an increased share of the health care portion of the budget going to 'hospitals and urban'. (table 5.3).

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(13) The present national currency, the kina, replaced the Australian dollar in January,1976. Introduced with its predecessor at parity, it has since then been revalued. In March,1979,K 1=Aus. $ 1.2589.

Table 5.3

Papua New Guinea, Department of Health.
'Health Care Expenditure' by function as percentage of total.

Function	1973/4	1974/5	1975/6	1976/7	Jul Dec 1977
Hospital & Urban	63.7	62.0	62.0	65.0	63.4
Rural	36.3	38.0	38.0	35.0	36.6

Source: As Table 5.2

As discussed earlier, the plan gave considerable attention to the need for a shift of resources to health improvement programmes:

> "However, as a proportion of the(total health) budget these (health care)services will fall from 66.3% to 63% in line with the need to relate expenditure on these maintenance services more closely to what the country can afford to pay and in accordance with the greater priority to be given to health improvement programmes".
>
> (Papua New Guinea, Department of Public Health, 1974: p.iv)

Again, this did not happen; in 1973/74, health care took 68.8 per cent of the total health budget and in 1976/77, 71.6 per cent. For the half year July to December 1977 the figure was almost 73 per cent and even the target figures for 1978 and 1979 are higher than at the beginning of the plan period.

Health improvement programmes were recognised by the plan as having greater potential impact on the health status of the population than health care services and were consequently

"given a greater priority" and "budgeted separately in order to preserve such priority". (Papua New Guinea, Department of Public Health, 1974: p.v). Health improvement expenditure was divided into two categories - malaria control and other health improvement programmes.

It was projected that expenditure on malaria control would rise dramatically, both in amount and as a proportion of the budget; it was to take over 16 per cent of all health expenditure by 1978/79. In the event, no such rise took place; by 1976/77 the proportion of the total budget spent on malaria control was only marginally higher than in 1973/74. The later figures show it falling back, to 7.3 per cent in 1979.

For other health improvement programmes, the picture is even worse. Far from the planned increase, we see a decline in the budget share of this activity from 4.9 per cent in 1973/74 to 3.4 per cent in 1976/77.

In the 1978 and 1979 estimates, however, there is a dramatic rise; the appropriation for this function in 1979 was K3.1 million compared to expenditure of $0.95 million in 1973/74. This appropriation gives 7.6 per cent of the total budget to health improvement programmes other than malaria control, actually exceeding the plan target. It must be emphasised once more, however, that the 1978 and 1979 figures are important insofar as they reflect a determination to retrieve the health plan strategy, but evidence from earlier years would strongly suggest that optimistic appropriations have not always been successfully translated into actual expenditure. (MacPherson,1979)

It is clear from the above that the overall shifts in the pattern of health expenditure, which the National Health Plan emphasised to strongly, were not achieved. The possible impact of the new National Public Expenditure Plan(NPEP) system for control of expenditure will be discussed below.

In order to assess the impact of the pattern of health expenditure which did emerge it would be extremely useful if changes in the 'level of health' could be examined. The purpose of health services is presumably to increase the health status of the total population: to reduce both morbidity and mortality levels. However, as in many other developing countries, the available data is lacking. (Cardus and Throll, 1977). Despite efforts to construct social indicators of health status in Papua New Guinea none presently exist in a form which can be used. (Apthorpe,1975; Berry and Jackson 1978). For many reasons, the systems of health data collection produce very unsatisfactory results:

> "The collection of health data, particularly vital statistics, is extremely difficult in Papua New Guinea. Approximately 90 per cent of the population is classified as living in rural areas, which vary tremendously in topography and degree of isolation. Civil registration of vital events in the indigenous population of births is not compulsory. Death certificates are only compulsory for deaths which occur in a hospital or health centre. These amount to approximately 10 per cent of all deaths. The available statistics thus tend to record only the illnesses and deaths of people who seek hospital care. About 90 per cent of people with fatal illnesses do not, or cannot, seek medical help before death and consequently the cause of death is not recorded in mortality statistics. The pattern of illnesses of rural dwellers is therefore uncertain."
>
> (Papua New Guinea,Bureau of Statistics,1978:p.142)

In recent years, the National Planning Office has begun to work on the construction of viable social indicators, including those related to health and have argued strongly the need for such indicators:

> "One of the most important and disturbing features of Papua New Guinea at the present time is the existence of considerable inequalities between areas and classes of people.....The policies of the former administration contributed to inequalities between provinces by directing resources to those areas with the greatest economic potential, mainly for export-oriented production".
>
> (Papua New Guinea, National Planning Office, 1978: p.48)

Until more complete information is available by district and province, on a range of health indicators - death rates, incidence of specific conditions and diseases, extent of malnutrition and so on - it is not possible to judge the effects of the failure to shift the pattern of health expenditure to basic health services. It is not likely however, that a continued reinforcement of the expenditure trends identified in 1973 will have done anything but exacerbate the health problems noted then.

Some information is available on the distribution of health facilities and staff, but this tells us very little about the realities of access to health services for the majority of the rural population. It indicates even less about changes in the 'state of health'. Analysis of the data available in 1978 showed that there were still gross disparities between provinces and although national averages have improved, the distributions show few signs of equalisation. (MacPherson,1978). Tables 5.4

to 5.8 give the results of that analysis. Taking together the five measures of health services ranked by province, it is interesting to note a change in the level of association between these measures over time. Statistical analysis suggests a weakening relationship between rankings on the various measures; in other words, for this particular set of measures there is a decreasingly close matching of rank order. Provinces are more frequently scoring high on some measures and low on others. (MacPherson,1978: Appendix 1).

This suggests a variable pattern of development of health services, part of which may be explained by local variations in the suitability of different forms of provision, due to transportation difficulties or population concentrations.

More fundamental questions are raised however, if we consider the distribution of those services given highest priority in the National Health Plan.

Taking population per aid post, it can be seen that the correlation between rank order in 1973 and 1977 is extremely high. Despite some improvements in the national average and improvement in some provinces, a number of provinces show a worsening situation; there has been no change in the relative positions of provinces on this measure.

Similarly, a high degree of correlation exists in respect of rural population per health centre between 1973 and 1977.

Thus, on the limited data available it would appear that there was more variation among provinces towards the end of the

TABLE 5.4

Papua New Guinea, Population per Doctor By Province, 1973 and 1977. (number and rank order)

	1973	1977
Western	19300 (11)	21475 (9)
Gulf	15600 (7)	22700 (10)
Central(and NCP)	4000 (1)	2916 (1)
Milne Bay	29300 (15)	42600 (18)
Northern	18000 (9)	40200 (17)
S.Highlands	28890 (14)	35816 (14)
Enga	41490 (17)	39650 (16)
W.Highlands	11830 (5)	27433 (12)
Chimbu	32600 (16)	54766 (19)
E.Highlands	19600 (12)	14752 (5)
Morobe	10770 (4)	16655 (8)
Madang	18120 (10)	16300 (7)
E.Sepik	17060 (8)	24375 (11)
W.Sepik	50050 (18)	36533 (15)
Manus	9120 (3)	15800 (6)
New Ireland	21490 (13)	11850 (3)
E.New Britain	7350 (2)	6445 (2)
W.New Britain	70870 (19)	28666 (13)
Nth Solomons	13130 (6)	12722 (4)
P.N.G.	17740	13467

(Spearman's coefficient of rank correlation $r_s = 0.69$)

Source: 1973 figures from National Health Plan Appendix 5.1. 1977 figures from unpublished data. National Planning Office. 1978.

Note: NCP: National Capital Province (Port Moresby and environs)

TABLE 5.5

Papua New Guinea Population per Nurse. By Province, 1973 and 1977 (number and rank order)

	1973	1977
Western	1710 (10)	2147 (13)
Gulf	1820 (11)	2002 (12)
Central (and NCP)	1140 (3)	634 (1)
Milne Bay	1330 (6)	1727 (8)
Northern	1670 (9)	1296 (4)
S.Highlands	3260 (16)	2498 (16)
Enga	3770 (18)	8811 (19)
W.Highlands	2570 (13)	2870 (17)
Chimbu	4290 (19)	2933 (18)
E.Highlands	3540 (17)	2207 (14)
Morobe	2720 (15)	1784 (11)
Madang	1600 (7)	1778 (10)
E.Sepik	2570 (13)	1772 (9)
W.Sepik	2090 (12)	2382 (15)
Manus	1300 (5)	1436 (6)
New Ireland	900 (2)	1316 (5)
E.New Britain	790 (1)	682 (2)
W.New Britain	1610 (8)	1457 (7)
Nth Solomons	1190 (4)	954 (3)
P.N.G.	1720	1504

(Spearman's coefficient of rank correlation $r_s = 0.83$

Source : as Table 5.4.

Note: NCP: see Table 5.4

TABLE 5.6

Papua New Guinea, Rural Population per Health Extension Officer. By Province, 1973 and 1977 (number and rank order)

	1973	1977
Western	17820(12)	17180(16)
Gulf	9890(3)	11350(4)
Central (and NCP)	7170(1)	6947(1)
Milne Bay	13000(4)	15975(14)
Northern	13430(6)	11485(5)
S.Highlands	22200(15)	13431(10)
Enga	33170(19)	26433(19)
W.Highlands	19380(14)	15431(12)
Chimbu	26780(18)	16430(15)
E.Highlands	18700(13)	15572(13)
Morobe	14470(7)	21414(18)
Madang	16150(10)	11505(6)
E.Sepik	17000(11)	17727(17)
W.Sepik	24500(17)	10960(3)
Manus	8200(2)	10533(2)
New Ireland	15250(9)	11850(8)
E.New Britain	13100(5)	11718(7)
W.New Britain	23130(16)	14333(11)
Nth Solomons	15130(8)	12722(9)
PNG	16090	13593

(Spearman's coefficient of rank correlation $r_s = 0.51$)

Source: for 1973, Appendix 5.2 N.H.P. for 1977, as Table 5.4

Notes: 1) Milne Bay entry reads 1300 in original
2) NCP: see Table 5.1.

TABLE 5.7.

Papua New Guinea, Rural Population per health centre. By Province, 1973 and 1977 (number and rank order)

	1973	1977
Western	14250(8)	13880(7)
Gulf	9900(1)	9766(1)
Central(and NCP)	24400(16)	20216(13)
Milne Bay	14300(9)	12533(4)
Northern	13400(6)	13700(6)
S.Highlands	20000(11)	18500(12)
Enga	20730(12)	21442(15)
W.Highlands	21530(13)	21060(14)
Chimbu	23000(15)	17688(11)
E.Highlands	30400(19)	32937(19)
Morobe	12770(5)	10955(2)
Madang	13460(7)	13516(5)
E.Sepik	24300(17)	23557(18)
W.Sepik	12250(4)	14157(8)
Manus	24590(18)	23300(17)
New Ireland	10500(2)	15675(10)
E.New Britain	22770(14)	21950(16)
W.New Britain	11570(3)	12516(3)
Nth Solomons.	15130(10)	14283(9)
P.N.G.	17380	14283

(Spearman's coefficient of rank correlation $r_s = 0.86$)

Source: 1973 figures from Appendix 5.3 N.H.P. 1977 figures as Table 5.4.

Note: NCP: see Table 5.1.

TABLE 5.8.

Papua New Guinea, Rural Population per aid post. By Province, 1973 and 1977 (number and rank order)

	1973	1977
Western	990(2)	1119(5)
Gulf	1290(7)	1273(7)
Central(and NCP)	1450(10)	1444(10)
Milne Bay	1110(5)	1105(4)
Northern	1370(9)	1397(9)
S.Highlands	2350(17)	2394(17)
Enga	2100(16)	1516(12)
W.Highlands	1830(14)	1755(14)
Chimbu	1960(15)	1941(16)
E.Highlands	2590(18)	2688(19)
Morobe	1040(3)	1053(3)
Madang	1300(8)	1308(8)
E.Sepik	1490(12)	1446(11)
W.Sepik	1460(11)	1548(13)
Manus	600(1)	582(1)
New Ireland	1050(4)	1045(2)
E.New Britain	5360(19)	2508(18)
W.New Britain	1610(13)	1788(15)
Nth Solomons	1240(6)	1207(6)
P.N.G.	1540	1500

(Spearman's coefficient of rank correlation, $r_s = 0.97$)

Source: as Table 5.7

Note: NCP: see Table 5.1

National Health Plan period than at the beginning.(13)

What is clear, despite the limitations of the evidence available, is that the systems for monitoring expenditure and the allocation of resources, did not succeed in curbing trends which were clearly recognised or in directing expenditure in the directions so clearly stated.

As discussed earlier, the National Public Expenditure Plan(NPEP) was devised to ensure greater control of government expenditure in all fields, including health.(14)

Whether the NPEP approach can achieve a significant reversal of the trends discussed earlier is as yet unclear. Berry and Jackson, in a review of the first year of the NPEP, demonstrated that inter-provincial inequalities in resource distribution were perpetuated rather than ameliorated by the NPEP. (Berry and Jackson,1978)

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(13) I am grateful to the staff of the National Planning Office for making the data for 1977 available. The figures used are those held by the NPO in 1978. Some doubt is cast on their accuracy by, for example, differences in figures for the Southern Highlands Province, which are discussed in Chapter 8.

(14) See Chapter 4.

They do, however, acknowledge the need for control:

> ".....we believe that an NPEP-type process - a national planning exercise that critically examines the allocation of resources in the light of development objectives - is absolutely essential. The alternative is a return to ill-informed decision-making; that is, even less planning than we have at present".
>
> (Berry and Jackson,1978: p.18)

Again as noted earlier, the decentralisation of central government functions to the provincial level has been a dominating feature of the recent administrative history of Papua New Guinea. While noting the crucial importance of decentralisation to the effective implementation of particular programmes, Berry and Jackson emphasise that the financial arrangements for decentralisation, when considered with the NPEP system, "are likely to perpetuate serious inequalities".(1978:p.18) In essence, both decentralisation and the NPEP have built their systems of resource allocation on prevailing distributions. New or changed policies can be effected only on the margins of what is essentially an ossification of the unequal distribution the new systems are designed to change.

The decentralisation issue raises what is perhaps one of the most important questions in relation to the development of basic health services in Papua New Guinea; does central government have the effective power necessary for the implementation of a national health strategy? Leaving aside for the present any discussion of the political will to

implement such a strategy, the history of health policy would suggest that it has had neither sufficient control nor a system of health planning which would ensure that the power it has had was effective in practice. Decentralisation may worsen this problem unless a determined effort is made to provide an effective national health planning framework within which provincial decisions are made. In 1979, the impetus for this was from the National Planning Office. At that time, attempts were being made to extend the NPEP process to include, in addition to new project expenditure, the recurrent expenditure of the major government departments.(15) For health, this would mean considerable changes in existing programmes to meet more closely the agreed national development objectives.

Certainly, unless present trends are reversed Papua New Guinea would seem to be following many other developing countries in the direction of an increasingly expensive, unequally distributed, urban biased, curative oriented health system.(16)

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(15) Personal communication, Bill Allan, National Planning Office, June,1979.

(16) In January,1980 it was announced that the Department of Health had approved plans for the construction of a new commercially operated private hospital in Port Moresby. The new hospital will include 40 beds, an x-ray theatre and maternity ward; the estimated cost is K 300,000. (Papua New Guinea,High Commission, London. 1980:p.5)

Preparation of 1979-1983 Health Plan

As noted earlier, by the end of the 1974-1978 plan period there was an awareness that the objectives of the health plan had not been met and that the new health plan must emphasise more strongly a commitment to basic health services. (Papua New Guinea, Department of Health,1978)

The National Health Programming Committee began preparation of the new health plan, for 1979-1983, in August 1978. A number of sub-committees were formed which met sporadically from October 1978 onwards. The target date for the preparation of the new plan was originally September,1979, but nothing was published by that date.(17)

What is clear, from public statements made by senior public servants in the health department, is that the concept of 'primary health care' has greatly influenced the deliberations of those preparing the new plan. Both the Minister of Health and his senior public servant attended the Alma-Ata conference on primary health care in September 1978.

Some indications of the commitment to primary health care may be taken from a paper by Dr.Y.H.Paik, the World Health Organisation adviser to Papua New Guinea:

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(17) As at April 1980, it remains the case that nothing has been published. The discussions of the sub-committees concerned with the preparation of the new plan were confidential; as a member of one of those sub-committees the author is bound by that confidentiality.

> "In Papua New Guinea, as a matter of fact, some form of Primary Health Care, although its scope is not well defined, has been practised in many years. (sic) It has the aid-post system at grass-root level, but the approach is not exactly the same as that now promoted by W.H.O.
>
> In this country, several favourable pre-conditions to promote this approach exist. The Government gives the top priority to rural development. "Increasing rural welfare" has been recognised as one of the priority objectives of the national development strategy and Primary Health Care would certainly contribute to the attainment of this natural major developmental goal. Any project which has relevance to Primary Health Care would be easily fitted into the National Public Expenditure Plan which becomes the managerial tool for developmental projects".
>
> (Paik,1978: pp.1-2)

Paik argues that Primary Health Care must be based on a total development approach, with integration of health programmes and "all other factors of rural development which have an influence on health". (1978:p.2) He suggests that the guiding principles of the 1974-1978 health plan were "entirely in line with the concept of the PHC" but that if the existing hospital system continues to be reinforced then "the aim of serving the underserved populations will never be attained". (1978: p.2)

Paik identifies the need for effective health planning and programming, and argues that:

> "Primary Health Care cannot be effective unless a strong infrastructure is designed to support community-based activities. Present servic organisation is inadequate for this task because it tends to be over-specialised, over-institutionalised,overly expensive and overly rigid".
>
> (1978: p.2)

In his recommendations for measures which would assist the development of primary health care in Papua New Guinea, Paik puts considerable stress on a community development approach; this would emphasise maximum participation in programmes for rural improvement, and the use of village health aides.(18)

For primary health care to be effective, it is argued that the whole of the health sector must be reorganised in line with a primary health care orientation:

> "There is a need to undertake reformation of the health system functions to be totally supportive of "health by the people" types of local activities".
>
> (Paik, 1978: p.3)

Although there is a shift of emphasis from the provision of a service to integrated local community development this call for reorganisation is obviously reminiscent of the first health plan, which, following King, argued for organisation "from the bottom up". The failure of the first health plan to meet its objectives must put in some doubt the possibility that a more dramatic reorientation would succeed. Paik is optimistic:

> "Fortunately, the National Health Programming Committee, appointed by the Minister for Health, has already recognised this as one of the priority areas for the National Health Plan covering the 5 years after 1978".
>
> (1978:p.3)

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(18) The use of village aides was proposed in the 1974-1978 health plan but has only been adopted in a few areas.

In the new system of primary health care provision, Paik identifies the aid-post orderly as the key health worker:

> "Functions and duties of the aid-post orderly who is the peripheral health worker should become much more a primary health care worker than is now the case. His re-orientation towards the specific objectives of PHC is warranted". (1978:p.4)

Summary

Although the available data has serious limitations, it is clear that the pattern of ill-health in Papua New Guinea is similar to that found in most developing countries; infectious diseases, faecally transmitted intestinal conditions and malnutrition are of major importance. The greater part of morbidity and mortality is susceptible to changes in socio-economic and environmental conditions; treatment for most cases is relatively simple and can be given by low-level health manpower.

The pattern of health services which developed under colonial administration was hospital-oriented and biased to curative medicine. The distribution of facilities reflected the patterns of European settlement and economic penetration. Missions played an important role in the provision of services both before and after independence.

Health policies in the years prior to independence reflected dominant views on appropriate development strategy. They con-

tinued to do so when, with political independence, Papua New Guinea adopted a national development strategy which attempted to redress inherited inequalities in access to resources within the framework of an economic strategy which emphasised the rapid growth of primary production for export. The National Health Plan, 1974-78, placed great stress on the progressive correction of imbalances in health expenditure, in particular those between urban and rural areas and between curative and preventive services. The stated intention, of using budgetary strategy as a planning mechanism to ensure the growth of basic health services, did not succeed during the period of the plan in reversing expenditure trends. Overall expenditure remains biased towards urban curative services and there have been no significant shifts in inter-provincial inequalities in access to health services.

During the latter part of the 1970s attempts have been made to develop a system of national planning which would ensure that programmes match more closely stated national objectives. Evidence relating to the success of this is inconclusive; it appears at present that despite a certain degree of control by the National Public Expenditure Plan process, other factors, and in particular the decentralisation of responsibility for basic health services, may make the implementation of a national health policy more difficult.

It would appear that the new health plan will, as has been the case in many other developing countries recently, be based on the 'primary health care' approach. To the extent that this

is so, it will be possible to identify three major approaches in the history of health policy in Papua New Guinea. First, limited replication of western-style facilities, with emphasis on hospitals. Second, concern with basic health services, focussed on health centres. Third, adoption of the 'primary health approach' which demands a broad 'developmental' strategy and makes the aid post pivotal, with emphasis on community organisation.

A major question is to what extent stated policy will be translated into actual programmes. There is considerable evidence in the history of health service provision in Papua New Guinea to suggest that despite policy assertions the health system continues to develop in inappropriate, expensive and inequitable ways.

The next chapter discusses the aid-post orderly in Papua New Guinea and later chapters explore some of the issues raised by the shift of emphasis to a 'total development approach', and the role of the aid post orderly in particular, in one of the least developed provinces of Papua New Guinea, the Southern Highlands.

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CHAPTER 6

THE AID POST ORDERLY IN PAPUA NEW GUINEA

Earlier chapters have noted the importance of auxilliary health workers in the provision of basic health services, and more recently, to the concept of primary health care. This chapter discusses aid post orderlies ; as was seen in Chapter 5, these are the health workers who are now recognised as carrying a major part of the burden of developing primary health care in Papua New Guinea. Later chapters discuss in detail the work of aid post orderlies in one province, the Southern Highlands.

Colonial History

As noted earlier, the employment of local people as basic level health workers began before the First World War. In Papua, this was primarily in order to carry out anti-yaws campaigns; locally-recruited assistants were trained to give injections.(Strong,1932) It was not until the 1930's that the authorities in Papua began training local people specifically for independent medical work in the community. The major emphasis in training was the attempt to produce a group of higher-level "Native Medical Assistants" through training courses in Fiji and Australia. (Vaughan,1968) In Papua, then, very little was done until after the Second World War, to develop a group of locally-recruited village health workers.

The situation in New Guinea was somewhat different, the employment of "heil tul-tuls" for village health work began as

early as 1903. (Essai,1961)

Radford quotes the Annual Report on New Guinea for 1911-12 as a 'clear picture of the tul-tul and his work':

> "A training period lasts on an average three months. They are then placed in their villages as heil tul-tuls. The activities of such heil tul-tuls consists of treating wounds and slight illnesses. More serious illnesses must be reported to the authorities .....With the assistance of the authorities a small house has been built in each village, where the bandages and medicines are kept, in which when necessity arises, several patients can be accommodated....."
>
> (Radford,1971A : p.3)

New Guinea was under German control until 1914 ; the area came under Australian military occupation at the outbreak of the First World War. Although controlled under a League of Nations mandate from the end of the war, civilian administration did not resume until 1921. Rowley, discussing the last few years of the German administration, notes that:

> "The medical tul-tuls were paid annual salaries of twenty marks, in itself an indication of the anxiety of the Government that the system should work effectively..... In 1913 an experiment with female 'health assistants'was commenced. The women concerned were to promote the health of nursing mothers and babies....."
>
> (Rowley,1957 : p.392)

There are a number of parallels between the German idea of village health workers and the 'aid post orderly' system which developed much later. In the German scheme the local health worker was trained to supervise village hygiene, deal with small injuries, and notify epidemics. The idea was one which might have been developed; Rowley suggests that:

> "It was in fact the most promising of German experiments in the promotion of health, even though the 'heil tul-tul' tended to be effective in proportion to his traditional status and personality".
>
> (Rowley, 1957 : p.397)

Many of these workers were established in their villages when the Australians took over control of New Guinea in 1914, but the new administration ceased the training programmes and severely curtailed supervision through patrolling. (McCluskey, 1965). In the period from 1914 to 1921 the system established by the German administration virtually collapsed ; in 1922 the official annual report noted that only 24 medical tul-tuls were working in New Ireland and the surrounding islands. (Territory of New Guinea, 1922).

A major reason for this collapse appears to have been that the Australian military administration was not allowed to retain the services of the existing German medical staff; this resulted in the loss of both this experience and the infrastructure they had established. (Essai : 1961)

By the 1920s then, with Australia administering both territories, the patterns of health provision had become much more alike. In particular, the previous German emphasis on locally recruited village health workers had been replaced by a concern to train hospital-oriented orderlies. The 1921-22 Annual Report acknowledged that under the Australian administration there had been little provision for medical services in the villages, except where there were missions. However, the medical tul-tul training centres had been re-established in 1922 at each outstation hospital, where:

> ".....the tul-tul was taught how to dress and treat tropical sores and other diseases, the recognition of cases requiring hospital treatment, administering treatment ordered by medical assistants, assisting at operations, elementary rules of sanitation and the methods of quarantining of infectious diseases".
>
> (Territory of New Guinea, 1922 : p.40)

In contrast to the German system, where the aim had been to appoint one medical tul-tul for each government appointed village leader (luluai), the Australian tul-tuls were centred around the 'native hospitals'. (Hahl,1936 ; Rowley, 1958; Vaughan, 1968)

Despite the fact that these workers were based at the hospitals it was recognised that hospital provision was inadequate. Thus,from 1922 the importance of medical patrols was stressed in order that treatment could be given to those without access to hospital facilities. (Territory of New Guinea,1922)

By 1930 there were 2,750 medical tul-tuls in New Guinea and in 1939, about 4,000. (Essai,1961:p.203) McCluskey(1965) states that the aim in New Guinea, prior to the Second World War, was still to place one medical tul-tul in each village; basic training was extremely brief,however, rarely more than one month and virtually all medical tul-tul were illiterate.

The two territories, Papua and New Guinea,continued to be administered separately until the Second World War; it was not until 1949 that unified civilian administration of the whole of Papua New Guinea was finally established. The war itself was profoundly disruptive to health services in both territories(1); it is only after the war that there was the beginning of the aid post orderly programme for the whole of Papua New Guinea.

In 1946 training schools began with funds from the Commonweath Reconstruction Training Scheme. It was argued that local village-based health workers could have a dramatic impact on the diseases responsible for the greater part of observed morbidity and mortality:

> "Signs and symptoms of the diseases were sufficiently distinctive and in most cases, allowing a diagnosis to be made by observation, except in some cases of malaria, but in all feverish cases the use of quinine would do no harm..... It was postulated that even illiterates could be trained to observe, diagnose and treat".
>
> (Gunther,1972 : p.750)

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(1) see Chapter 5.

From the outset, the aid post orderly was not intended to be a full-time,paid health worker. It was assumed that his task was part-time and only a small allowance was envisaged. In fact, practice varied considerably in the late 1940s and early 1950s. (Gunther,1951; Saave,1954) Aid post orderlies were employed by missions and local government councils. In both cases, the majority were paid in kind - uniform, rice, tinned meat and tobacco - it was not until the late 1950s that they were all paid in cash, at the local government labourers rate on a half-time basis.(2)

The local community was expected to build a house for the orderly, to supply him with water and firewood where necessary and to assist with work on his gardens. Initially, it was proposed that local communities would select trainees for these positions but it seems clear that this was rarely done. The position was seen as a honorary one, often carrying considerable prestige due to its links with government authority; it would appear that appointments were almost always made by medical officers or district administrators. (Carlaw,1962;Taufa,1979)

The training of aid post orderlies was funded by the Commonwealth Reconstruction Training Scheme until 1951; thereafter it was financed by the Public Health Department. There were six training schools established, at Port Moresby, Lae, Wewak, Mount Hagen and Goroka ; by 1960 there were 956 trained aid post orderlies in post and 224 more in training schools throughout the Territory. (Territory of Papua and New Guinea, Department of Public Health,1961;Fowler,1961)

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(2) personal communication Dr.T.Taufa,Department of Community Medicine,University of Papua New Guinea.

In 1960, Wright described the aid post orderlies as the "unpaid general practitioners of the Territory" (1960:p.26) and argued strongly for recognition of their importance:

> "No group of people ever faced greater difficulties in the practice of medicine than do Aid Post Orderlies. With meagre education, limited experience and no literature, they form the first line of attack against disease. They should receive the best possible support".
>
> (1960:p.26)

Despite such support, which was echoed in the annual reports of the health department, the number of aid post orderlies began to decline during the 1960s. As can be seen in Table 6.1, there was a 20 per cent fall from 1961 to 1971.

Table 6.1

Papua New Guinea. Number of Aid Post Orderlies By Year 1961 to 1971

Year	Number of Orderlies
1961	1407
1962	1293
1963	N.A.
1964	N.A.
1965	1216
1966	1278
1967	1270
1968	1182
1969	1170
1970	1146
1971	1119

note: does not include aid post orderlies employed by non-government organisations e.g. missions.
source: Annual Reports, Department of Public Health 1960-61, 1961-62 and 1964-65 to 1970-71.

In 1962, the Director of the Department of Public Health stated that it was the aim of the department to staff 340 new aid posts. (Territory of Papua and New Guinea, Department of Public Health,1962) It was, however, in January,1962 that the Administration began to shift responsibility for aid posts to local government councils. A graduated subsidy scheme was introduced, in which the amount of central government support for aid posts was determined by the state of local councils' income. The pattern of support for aid post services which emerged as a result of this scheme was extremely confused; the local government share of the aid post orderly's pay could be nil, 20 per cent, 50 per cent, or 75 per cent. Responsibility for supplies and buildings varied in different proportions. An inevitable result of this arrangement was confusion over the respective roles of central and local government in particular circumstances. Both the central Department of Public Health and the local authorities were frequently deficient in accounting and administration; the aid posts were very often caught between them, with no clear policy for their local operation. (Territory of Papua and New Guinea, House of Assembly,1967: 41-45)

Despite continuing references to the importance of aid posts in rural areas, the central administration had, by the mid-1960s, begun to disengage itself from aid post services. As noted earlier, the overall emphasis of health policy at that time was on hospitals and health centres. The International Bank for Reconstruction and Development(IBRD) mission to Papua and

New Guinea in 1963 gave considerable support to this approach.(3) Their assessment of the aid post system at that time is important in itself but also because of its influence on policies in the ensuing years:

> "The A.P.O. is typically a young man with a few years of primary education who receives 18 months special training in a school for APO's and is then assigned to an aid post. His duties are to provide first aid, give simple treatment for common diseases (malaria,gastro-enteritis,bronchitis,skin diseases, etc.) refer more difficult cases to the nearest hospital and set an example to the community in sanitation and elementary hygiene. He returns to a rural hospital once a month for more drugs and dressings and is meant to be supervised in his own aid post once every three months by the medical assistant in charge of the hospital, but in practice this has sometimes proved impossible owing to lack of communications. He is expected to be always available to the community but is actually a part-time worker as he spends a portion of his time working in his garden to produce the food he eats".
>
> (International Bank for Reconstruction and Development, 1965 : p.341)

As a description of the work of aid post orderlies this is very close to that offered by many others on numerous occasions since; the mission's interpretation of the problems faced by the aid post system was rather different. In contrast to those committed to health service provision which has its focus at the community level the mission was heavily influenced by two major considerations. First, that health services must be based on hospitals and health centres, and second, that the expenditure on health services must be reduced. Inevitably, the result of these two meant withdrawal of support for aid

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(3) see Chapter 5

posts; the IBRD report argued that:

> "As more rural health centers are established, the present system of aid posts will gradually become subordinate to the health center program .....By themselves the aid posts do not provide an adequate rural health network to support an effective health program."
>
> (1965:p.342)

Although aware that attempts were being made to improve the system, particularly through better training and supervision, the mission's specific recommendations were almost entirely negative in terms of the development of the aid post system:

> ".....the following principles should be followed in planning the future of the aid post system : no new aid posts should be established unless adequate supervision can be provided; present aid posts, which do not receive supervision at reasonable intervals owing to lack of access roads or other means of communication, should be closed until adequate communications are provided; there should be increased supervision for the aid posts retained, and more refresher courses for the APO.....The subsidy for aid posts maintained by the missions and for mission training of APO's should be continued".
>
> (IBRD,1965 : p.342)

In addition, the mission gave support to the transfer of responsibility for aid posts to local government councils. The mission view of aid posts was clear; they were peripheral to the development of health services by central government. Support for local government responsibility and the role of missions would ensure that in practice there was no positive national policy for what had been referred to as "the backbone of rural health services". (Territory of Papua and New Guinea,

Department of Public Health,1962)

To a considerable extent, of course, the mission was reflecting views within the Department of Public Health; these views were clear in approaches to aid post provision during the 1960s.

In 1965, the aid post orderly training schools at Goroka and Lae were closed, trainees being transferred to Wewak and Mount Hagen. The following year only Mount Hagen remained open:

> "The training of aid post orderlies ceased in 1967, but a special course was conducted at Mount Hagen to provide aid post orderlies for the Southern Highlands District. 26 students graduated and 8 were required to undertake further training. Although various missions will continue the training of aid post orderlies the Department of Public Health will conduct courses only if a definite need can be established".
>
> (Territory of Papua and New Guinea,Department of Public Health, 1969 : p.36)

Apart from the 'special case' of the group trained for the Southern Highlands, who graduated early in 1969, the only training available after 1967 was that offered by the missions.

A final element in the abandonment of aid post orderly training again illustrates dominant contemporary attitudes to basic health services in rural areas. Radford (1971) notes that there was, in the mid-1960s, an expressed policy at the Department of Public Health headquarters that there was an increasing number of nurses becoming available who would

displace orderlies at rural hospitals. These orderlies were seen as being suitable to staff aid posts. In Radford's view these hospital orderlies were:

> ".....virtually untrained (as far as Aid Post work was concerned) and many untrainable or too old for the vigorous work required of an APO".
>
> (1971 : p.6)

He makes the further important observation that the use of hospital orderlies to staff aid posts resulted not just from a shortage of trained aid post orderlies but from

> "punishment by senior health personnel at sub-district and district and even regional health offices for real or imagined misdemeanors by the hospital orderlies.....(this) is to be deplored as hospital orderlies are not trained for Aid Post work and if their work was unsatisfactory in a central place it is unlikely to improve in a primitive place with, at best, intermittent supervision".
>
> (Radford, 1971 : p.5)

The 1970s

By the late 1960s then, the aid post system was in a poor state. Despite earlier recognition of the crucial importance of basic services in rural areas, and the central place of aid post orderlies in this provision, the system established in the 1940s had not been developed. Orderlies were still paid half-time labourers rates ; they were employed by central government, local councils and missions with no national policy or system of control; government had abandoned its training programme and left the task to uncoordinated voluntary activity by the missions; the position of aid post orderly was further undermined and

devalued by the use of untrained and unwilling hospital orderlies to staff aid posts.

The effects of this neglect of the aid posts were dramatically illustrated by the very severe influenza epidemics of 1969 and 1970. (Territory of Papua and New Guinea, Department of Public Health, 1970A). The Director of Public Health reported in 1970 that:

> "The available health workers were not able to cope with the control and treatment of the disease and extensive assistance was provided by the armed forces personnel, and many others. At Aid Post level the limited supplies did not match the rapid build up of the disease and many people died. Poor communication prevented this information reaching sub-district centres and many of the deaths were only reported when a study of mortality was undertaken".
>
> (Territory of Papua and New Guinea, Department of Public Health, 1970B : pp.1-2)

Noting that there was no clear evidence that vaccination against influenza was effective, it was announced that in 1970, no major influenza vaccination programme would be undertaken; instead, a start would be made in correcting the weaknesses of the aid post system. As the Ministerial Member for Public Health stated in his foreword to 1969-70 Annual Report:

> "Influenza has shown the need for changes in rural services. The most important of these have already been made to improve Aid Post Orderly services".
>
> (1970B : p.v.)

In a dramatic shift of emphasis, aid posts were now the

centre of attention; the call was for a national health pattern based on "an effective rural community health service that will need a new type of rural health worker". (1970B : p.2) The seemingly disingenuous statement that the Health Department "had long sought improvements in conditions for Aid Post Orderlies" may perhaps be seen as reflecting the views of health administrators now free to decide their own health policy. There is perhaps some significance in the fact that the 1969-70 Annual Report opens with a reference to the Australian government's decision to give responsibility for health policy to the elected Territory representatives from 1971:

> ".....the year under consideration in this Report is the last year of Australian domination of policy decisions in the Health field".
>
> (1970B : p.1)

Perhaps the most important specific change resulting from the influenza epidemic was that aid post orderlies could now be paid "near orderly rates depending on hours they work". They were still not paid as full-time workers but were no longer restricted to half-time labourers rates. It was reported that supplies of the most important medicines had been increased, so that the aid post orderly "can always treat most diseases that kill quickly, provided the people seek his help". Beyond these changes the report noted the problems of the aid post system and expressed a determination to deal with them:

> "The Aid Post Orderly village pattern has other problems; trained between 1946 and 1955(sic,1965) they are no longer young men; the only training today is undertaken by Missions ; the increase in population

> and sophistication demands a better qualified worker ; improved communications make some surplus ; and new drugs such as the 75 day leprosy injection need a new approach. A regular visit to each village should improve the quality of the Aid Post and ensure the maintenance of a healthy community.
>
> Health must devolve into the community. As well as Hospital Boards a clearer relationship is needed with Councils, including a local government service and a link with mission medical services".
>
> (Territory of Papua and New Guinea, Department of Public Health, 1970B : p.2)

Thus the impact of the influenza epidemic may be seen as producing a dramatic reappraisal of rural health services, and of aid post orderlies in particular. This continued between 1970 and 1974 when the National Health Plan was published. (Binns,1971; Sturt, 1972;Symes, 1971; Tarutia,1972).

In the Annual Report for 1970-71, it was announced that aid post orderly training would begin again, at the Mount Ambra Training Complex near Mount Hagen. The aid post was again given major emphasis:

> "The aidpost orderly is the only health worker living and working in the villages. In many areas of this country for years to come the aid post will be the only easily accessible medical care for the village people. The Health Department carries the obligation to provide national coverage for the care of the sick and the prevention of disease. National coverage is possible only through the aidpost system. The decision to begin training aidpost orderlies again, and encourage Mission aidpost orderly training schools to take more students, will greatly improve health services at village level in the future".
>
> (Papua New Guinea, Department of Public Health,1971 : foreword)

In 1972, 44 students were undergoing training at Mount Ambra; the entry level was now standard six and the course consisted of one year full-time at the training school followed by another year of supervised experience at a health centre. Under the new scheme of training, local government councils sponsoring trainees were required to make a financial contribution. (Papua New Guinea, Department of Public Health, 1972A; Morton, 1973)

By this time, work had begun on preparing a National Health Plan ; as part of that preparation the Department of Public Health produced a policy document on the aid post system. (Papua New Guinea, Department of Public Health, 1972B). This clearly reflected the influence of those who had deplored the cessation of aid post orderly training and argued, with Radford, the importance of the aid post to the development of rural services(Malcolm,1971; Radford,1971A; 1971B, 1972A,1972B; Sturt,1972; Symes,1972)

> ".....an appropriate training programme for aid post orderlies and the designation of a role in society which raises their social standing, together with an improved network of supervision, is a top priority in planning the allocation of resources for a successful future rural health service in this country".
>
> (Radford, 1972A: p.266)

The policy document was unequivocal in its support for the aid post concept; the emphasis of discussion was on the failure to develop the aid posts and the difficulties of administering such a system. Quantitative deficiencies were blamed squarely

on the decision to stop training; qualitative defects were seen to result from a variety of factors, but there was a consistent theme of neglect. The aid post system had clearly suffered as a 'poor relation' in a health service focussed primarily on hospitals and health centres. The document suggested that the principal deficiencies of the system stemmed from:

> "(i)inadequate supervision ; (ii) failure to provide regular inservice training opportunities; (iii) lack of interest in the aid post orderlies; (iv) ignorance of the important role of aid posts; (v) inefficient procedures for the supply of drugs and dressings; (vi) poor community and council interest and support; (vii) the low status accorded aid post orderlies by other health workers; and (viii) the problems created by the employment of hospital orderlies in aid posts."
>
> (Papua New Guinea, Department of Public Health, 1972B: p.1)

Radford (1971A) had argued a very similar case; in addition, he had identified several other specific reasons for the poor functioning of aid post orderlies. In particular, he pointed to the generally low standards of housing, the inadequacy of garden space and the lack of financial security:

> "There is no pension scheme currently operating for APOs. Uncertainty of their future(long term) often results in absenteeism whilst tending gardens(locally or at home) of cocoa, coffee, etc., in an effort to provide for their retirement. The lack of pension and part-time salary is a constant and reasonable 'bone of contention' by APOs.
>
> (Radford,1971A : p.7)

The document proposed numerous strategies by which the deficiencies which had been identified might be corrected.

In essence, the proposals were exhortory; all those involved in the administration of the system must take the aid posts more seriously. Emphasis was put on community responsibility for aid posts, which would, in most cases, mean local government council responsibility. One important change here was the suggestion that in future the Department of Public Health would 'encourage' the employment of all aid post orderlies, "whether at present PHD or Mission", by Local Government Councils. Similarly, it was suggested that the formation of local health committees should be 'encouraged'. There was, in fact, despite the intense rhetoric, very little offered in the way of specific programmes of action.

On the question of the aid post orderlies' conditions of service, identified as a major source of difficulty, some significant changes were proposed, along with some perhaps not so significant:

> ".....(i) improved career opportunities for aid post orderlies; (ii) all aid post orderlies becoming full-time health workers; (iii) future transfer to a local government service; (iv) improved uniforms; and (v) badges for all orderlies similar to those now available for aid post supervisors".
>
> (Papua New Guinea, Department of Public Health, 1972B : p.3)

However, despite the statement that the aid post system would receive 'high priority' for funds, the proposed changes were said to 'depend on available funds'. The report did, however, include in its final list of recommendations the proposal that all aid post orderlies, with the exception of

those in isolated and special situations, should be regarded as full-time workers.

The 1972 policy document was important not so much for its specific recommendations but as an expression of the new commitment to the aid post system. (Papua New Guinea News, 1972). This, as noted earlier, was strongly expressed and is demonstrated by what the document itself labelled an 'assertion' :

> "The effectiveness of medical care in Papua New Guinea will always be related directly to the contribution made by aid posts to patient care and community protection. Aid posts for many years to come will remain the point of first contact for the majority of people seeking medical care in this country".
>
> (Papua New Guinea, Department of Public Health, 1972B : p.6)

It was recognised that more work would be needed to prepare specific programmes of training and definite recommendations regarding the conditions of service and career structure for aid post orderlies. (Papua New Guinea, Department of Public Health, 1972C) The results of this work were discussed at the Aid Post Orderly Workshop held in May,1973. (Papua New Guinea, Department of Public Health,1973) The workshop participants represented those involved in the training and supervision of aid post orderlies; given the withdrawal of government from this sphere in the late 1960s the group inevitably contained a large proportion of mission representative. The workshop was concerned primarily with training, and proposed a syllabus

to be followed at all aid post orderly training schools.(4) The recommended course was given in considerable detail,and it was envisaged that training would last for two or three years, depending on the intensity of instruction. In addition, very detailed recommendations were made regarding supplies and supervision. Beyond detailing these programmes of (King,1966) action, perhaps the most significant recommendations made by the workshop were those on the career structure of aid post orderlies. Three grades were proposed, the two senior grades being open to orderlies after seven and twelve years. However, only at the highest grade, promotion to which being 'on a highly competitive basis' would an aid post orderly's salary be 'not less than that enjoyed by Hospital Orderlies'. (Papua New Guinea, Department of Public Health, 1973 : p.39)

Thus, by 1973, the crucial importance of aid post orderlies had been recognised; the 1973 workshop going as far as to suggest that "without him the whole Health structure collapses" (1973 : p.3) Considerable progress had been made towards defining the orderly's role more clearly, establishing uniform training courses and improving conditions of service. The National Health Plan of 1974 embodied most of the proposals made in the preceding years; as noted earlier, considerable emphasis was given to aid posts in the plan for 1974-1978.(5)

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(4) Yet another direct link to the East African experience was that the basis of the new syllabus had been proposed by Dr.F.J.Bennett, then Professor of Community Medicine, Makerere University, Uganda. Bennett had been closely involved with the work for King's influential book . (King,1966)

(5) see Chapter 5.

Despite an expressed commitment to reform the aid post system and remedy the defects which had been discussed at length during the early 1970s the plan retained local council responsibility for aid post provision:

> An aid post is a community-based institution. Communities and councils are expected to build and maintain the aid post and their orderlies' houses, and to assist in the provision of their service".
>
> (Papua New Guinea, Department of Public Health, 1974 : p.94)

Despite this emphasis on local councils, in 1974-75 less than a quarter of all aid posts were council-run; 432 council, 1003 government and 191 mission. (Papua New Guinea, Department of Health, 1978: p.105) Many of the serious problems of administration and conditions of service, which were to continue throughout the 1970s, resulted from the confusion of administrative responsibility for aid posts.

The specific improvments proposed in the health plan avoided the difficult issues of administrative control; only in the payment of salaries was a national system proposed. All aid post orderly salaries were to be the same, regardless of employing agency, and all salary costs were to be met by the Health Department. Although both council and government employed orderlies were subsequently paid the same rate. Mission orderlies continued to receive varying amounts throughout the period of the plan. (Taufa,1979)

The plan accepted virtually all previous proposals for improved training, greater community involvement through local health committees and improved supplies and supervision. These were, however, to remain major problems; in 1977, the Minister of Health, in announcing similar proposals for change, said that "in the past, the aid post orderly system and its workers had been practically forgotten". (Post-Courier,1977: p.4)

The training manual 'being prepared' in 1974 was not published until 1978(Calvert,1978)

On conditions of service, the health plan did not recommend the previously proposed three grade career structure; its other recommendations, had they been implemented, would have brought dramatic changes.

First, all aid post orderlies were to be full-time, on salaries the same as those received by hospital orderlies. In fact, it was not until 1976 that all orderlies were employed on a full-time basis; their pay remained below that of the hospital orderlies throughout the health plan period. (Taufa,1979: p.5)

Second, orderlies were to have leave and other entitlements, similar to those enjoyed by public service employees. These had still not been given by 1978.

Third, retirement and retrenchment benefits were proposed for those with more than ten years service. Apart from rewarding years of service:

> "Retirement and retrenchment of aged and inefficient aid post orderlies will make way for replacement by younger orderlies now being trained at Mt.Ambra and in church training schools. This should result in a gradual improvement in the service over the next 10-15 years".
>
> (Papua New Guinea,Department of Public Health,1974: p.97)

Yet again, however, these proposals were not implemented; it was not until 1979 that aid post orderlies became eligible for retirement benefits of any sort.

From 1974 to 1979 the issue of pay and conditions was a constant source of conflict between aid post orderlies and the health department. As more and more fully-trained orderlies came into post, the low level of pay, poor conditions of service and lack of career structure were more vociferously and consistently challenged.(6) Essentially, the aid post orderlies were struggling for recognition within the professional medical hierarchy. In this, the trend to higher levels of formal educational qualification for entry was both cause and effect. As training improved, educational requirements were raised; with rapid localisation of salaried public service positions. Competition for places increased, thus pushing qualifications even higher. Those entering training as aid post orderlies in the late 1970s very often had several years of secondary education; in the past orderlies had rarely had more than primary education.(7)

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(6) personal communication, Mr.Dixon Maioni, General Secretary, Papua New Guinea Aid Post Orderlies Association. See Chapter 10 for discussion of the views of orderlies in the Southern Highlands.

(7) personal communication, W.P.Chang,Principal,Mount Ambra Aid Post Orderly Training School.

Until 1978, most aid post orderlies continued to be paid at labourers rates; in that year they received a modest pay rise but failed to gain the other improvements for which they had been pressing.

It was not until March, 1980 that pay and conditions were finally altered in line with the recommendations of the early 1970s. The new conditions apply to all aid post orderlies, government, council and mission. Three grades of orderly now exist, with pay for the lowest grade being above the labourers rate; the new scales give a career structure, and pay, equivalent to that of hospital orderlies.(8) In addition orderlies were awarded annual leave and sick leave entitlements, a uniform, and standard working hours. (Post Courier, 1980)

The 1980 increases and improvements must be seen as a major change. Aid post orderlies finally achieved the pay, conditions, and career structure they had demanded.

Paradoxically, this recognition of the value of aid post orderlies may be seen as a major obstacle to the success of their contribution to a primary health care strategy in Papua New Guinea. The extent to which personnel of this sort have been used in the provision of basic health services

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(8) The new weekly scales from March 1980 were: APO grade 1 - K32.57, APO grade 2 - K35.56, APO grade 3 - K44.12, APO Supervisor K47.67. Also from March 1980 the minimum rural labourer rate was raised to K12.40 per week.

and the development of primary health care was discussed earlier.(9)

It was pointed out in 1978, by the principal of the major aid post orderly training school that:

> "The Aid Post Orderly will continue indefinitely to play a vital role in the provision of primary health care to th rural population in Papua New Guinea. However, the Aid Post Orderly is too clinically oriented and practically he has little contact with the community".
>
> (Chang, 1978 : p.2)

The question which must be raised is whether the orientation of aid post orderlies can be moved away from treatment towards total health improvement which is essentially based on a community development approach. For this to succeed, the relationship of the orderly with the community he serves is vital; it may be argued that ever higher educational requirements, relatively very high levels of pay and increased career opportunities will make this relationship more problematic. Later chapters will examine these issues in the context of one of the most rapidly changing areas of Papua New Guinea, the Southern Highlands.(10)

Summary

The history of aid post provision in Papua New Guinea has been seen to reflect clearly the dominant trends in basic health provision in non-socialist developing countries. Throughout the

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(9) see Chapter 2.
(10) see particularly Chapters 10 and 11.

period of colonial administration aid posts were essentially peripheral to the health services as a whole. Despite the rhetoric which emphasised their importance to the health of the rural majority they were consistently neglected; they inevitably suffered as a consequence of the primary concern with hospital based medicine. The culmination of this neglect was the decision, almost incredible in retrospect, to stop training aid post orderlies in the late 1960s. The realisation that western-style, hospital-based medical care was inappropriate came with independence and was heavily influenced by experience elsewhere. The National Health Plan, in a dramatic reverse of the policies of the late 1960s, gave the aid posts a central role in the development of health services. However, the evidence suggests that in the years which followed the objectives of the plan were not achieved; trends both within the health system and in the society at large were too powerful. The problem was compounded by both a lack of health planning capacity, and a lack of the central control which might make that planning effective. Only in the final years of the 1970s have planning systems emerged, notably the National Public Expenditure Plan, which may ensure that national objectives are met more closely.

The current emphasis on primary health care, acknowledging the inadequacy of treatment-only basic health services, again reflects international trends. The aid post orderly is now seen as potentially the most important figure in community-based primary health care programmes for the majority of the population. (Calvert, 1978)

Whether this potential can be realised will depend not simply on the reversal of trends in the distribution of health resources but on the ability of communities to organise for health. This, and the problems with which they will have to deal, will be affected not by health policies or programmes but by the major social, economic and political changes which are taking place in Papua New Guinea.

The aid post orderlies, in their final achievement of 'public service' status and conditions of service may be seen to epitomise those changes.

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CHAPTER 7 - THE SOUTHERN HIGHLANDS PROVINCE.

The Southern Highlands Province(SHP) is located almost in the centre of Papua New Guinea(figure 7.1) and forms part of the Highlands region which stretches for 2,500 km.through the length of the mainland. It is situated on the broader south-western section of the central cordillera and is characterised by a series of rugged ranges, valleys and volcanic plains. The greater part of the province lies between 1,500 and 4,000 metres above sea level, but to the south-west the elevation falls to approximately 800 metres around Lake Kutubu (figure 7.2). In the north-east the peaks of Ialibu and Giluwe rise to 3,465 metres and 4,368 metres respectively,forming part of the central cordillera which divides the waters of the Sepik river system in the north from those of the Purari and Kikori river systems which drain through the province in a south-easterly direction towards the Papuan Gulf. The Doma Peaks, an active volcanic area, rise to a height of 3,566 metres and flank the Tari Gap, which lies on the proposed route of the new road which will connect the Tari area with the rest of the province. The topography is extremely rugged and this feature has determined much of the history. The population is concentrated in highland valleys and basins between 1500 and 2500 metres in altitude, very sharply separated from one another by limestone ridges running northwest-southeast. (McAlpine,1972)

Climate

Within the province there is a considerable variation in climate, determined essentially by altitude. At lower elevations

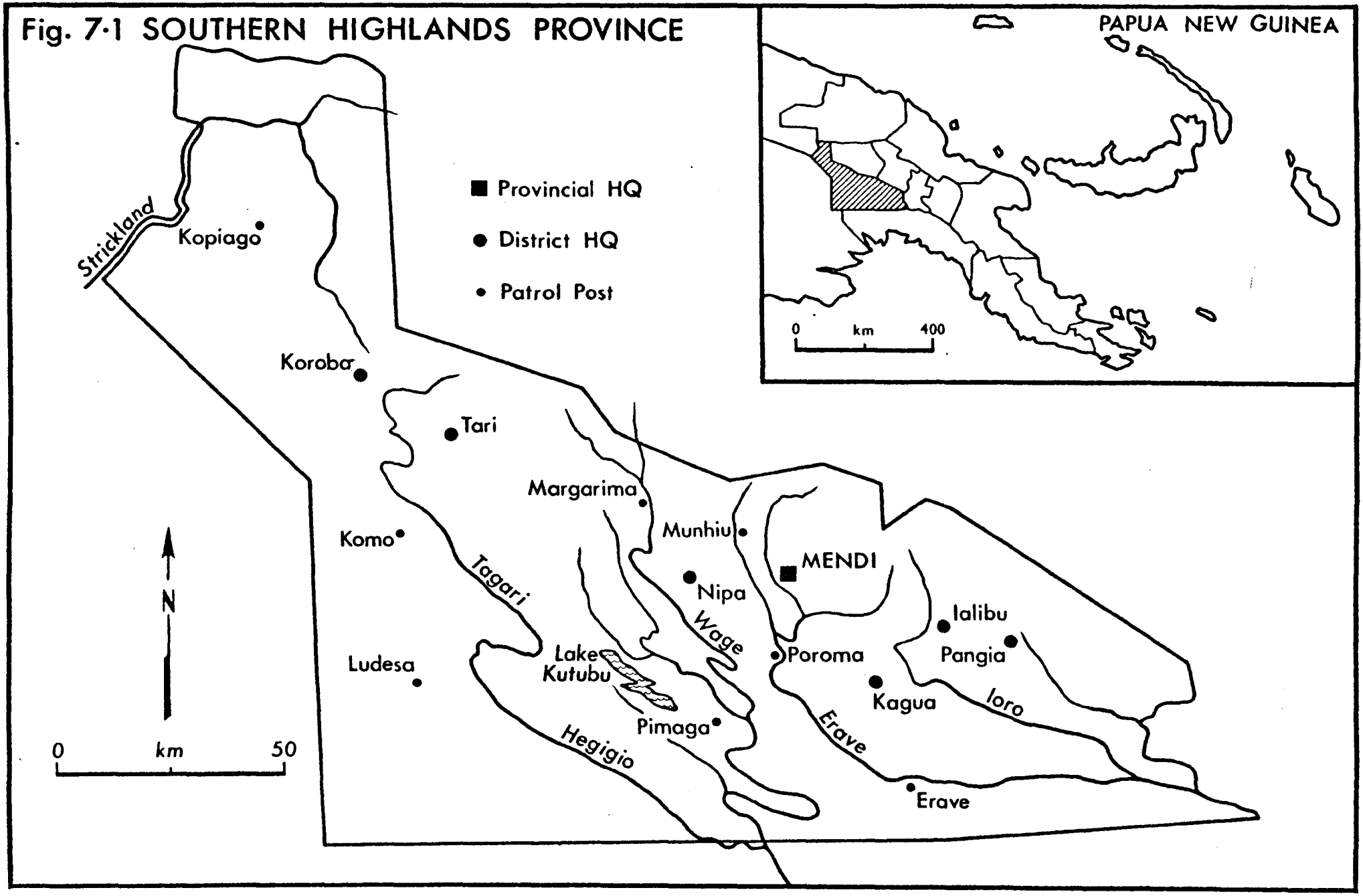
Fig. 7·1 SOUTHERN HIGHLANDS PROVINCE
PAPUA NEW GUINEA
0 km 400
Provincial HQ
District HQ
Patrol Post
Strickland
Kopiago
Koroba
Tari
Margarima
Komo
Munhiu
MENDI
Tagari
Nipa
Wage
Ludesa
Lake Kutubu
Pimaga
Hegigio
Poroma
Ialibu
Pangia
Kagua
Ioro
Erave
Erave
N
0 km 50

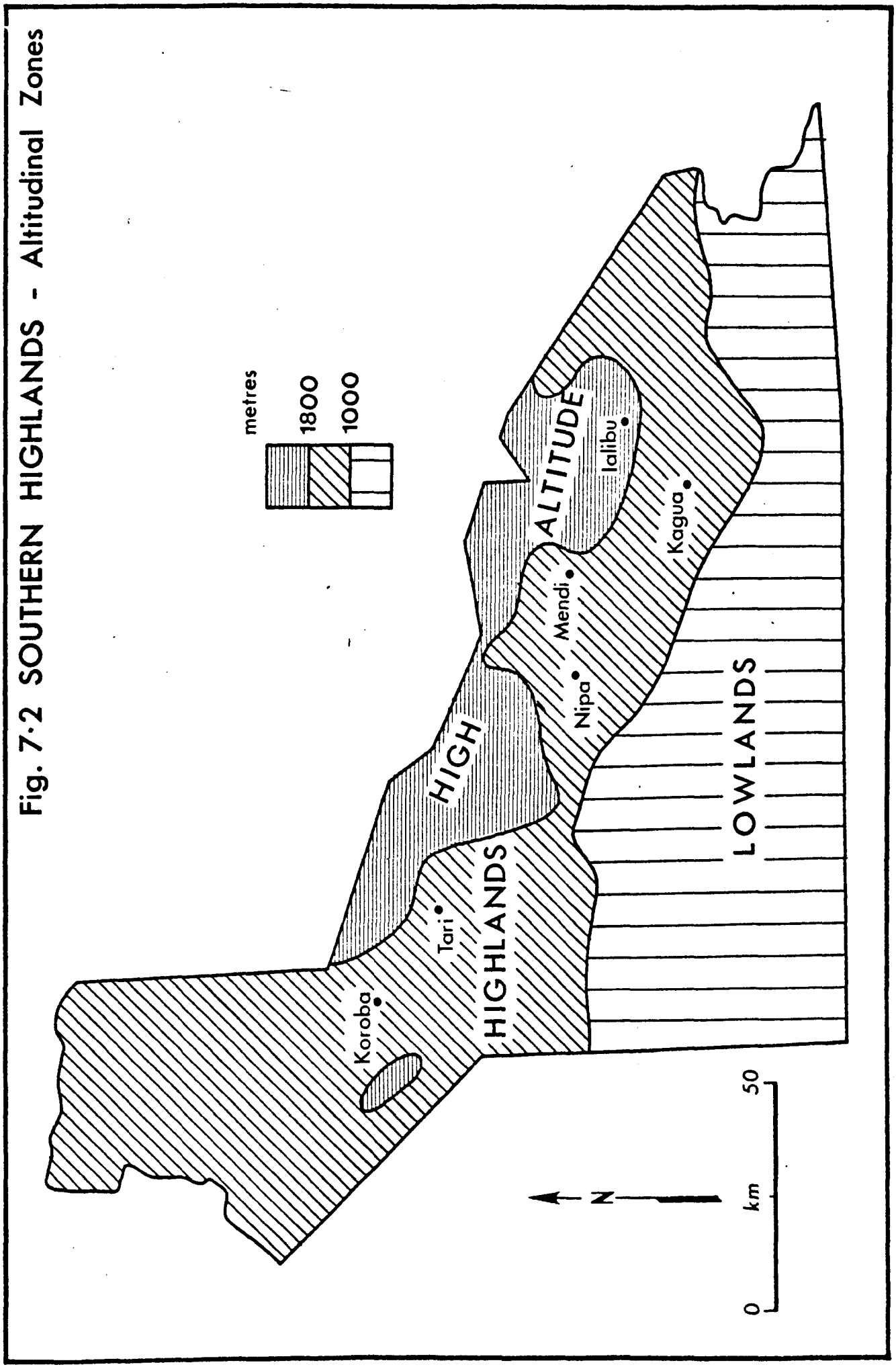

Fig. 7·2 SOUTHERN HIGHLANDS - Altitudinal Zones

the climate is humid and tropical, but with the lower temperatures at higher altitudes it is more akin to the moist temperate climates typical of higher latitudes. The Southern Highlands is the wettest of all highlands provinces and is one of the few areas without a well-defined seasonality in rainfall, with fairly even distribution of rainfall throughout the year and no marked dry season. There is a general north-south gradient in rainfall(McAlpine,1972) but it is high everywhere in the province. The lowest mean annual rainfall, 2,450mm, has been recorded at Tari, the highest, 4,500 mm, at Lake Kutubu. Over the province as a whole there is an average of 20 to 25 rainy days per month throughout the year and as evaporation is moderate most rivers are continual torrents for most of the year.

As with rainfall, there is little seasonal variation in temperature. The major temperature variations are between day and night temperatures, some 10 degrees Centigrade, and variations associated with altitude. McAlpine states that over the whole area mean annual temperature decreases by two degrees Centigrade per 300 metres ascent . (1972,p.1088) At Mendi, the administrative centre of the Province, the mean daily maximum for the year is 23 degrees Centigrade with a minimum of 13 degrees and almost no seasonal variation; the highest temperature recorded is 34 degrees and lowest 3 degrees.

Generally, areas below about 1,800 metres above sea level are free of frost, but frost becomes increasingly common with

elevation. Above 2,500 metres frosts are common, and snow occasionally falls on the summit of Mount Giluwe. In 1972, contrary to the usual pattern, frosts occurred as low as 1,500 metres, causing extensive damage to crops and necessitating a large-scale operation for the distribution of food.(Simpson,1977)

Although disasters such as that in 1972 occur rarely, the impact of topography and climate is of extreme importance. In relation to agriculture and health, themselves being crucially interrelated, the differential effects of varying altitude and climate are marked. Sinclair paints a lyrical picture of the Highland environment:

> Of all the districts of Papua and New Guinea, the Highlands are by nature the most favoured. Straddling the territorial border, the superb grassed valleys, the towering mountains and the cool refreshing climate of these districts set them apart. The layman's picture of New Guinea - sweltering heat, torrential rain, jungle, swamps, fever - is true of much of the territory, but it has no application to the Highlands. Here we find a land of high valleys - five thousand feet high - clasped and upheld by a chain of mountains that rise to eleven, thirteen, even fifteen thousand feet, blessed with a climate that is perennial spring, free from the scourge of tropical disease, with rainfall and soils capable of coaxing forth almost any kind of temperate crops.
>
> (Sinclair,1971:p.1X)

Such a description is not so much false as incomplete; there is no reference to immense difficulties of movement between the valleys, no mention of the cold, wet, nights and the high levels of sickness, no discussion of the tropical conditions in the southern part of the SHP and of the extreme conditions of the high altitude zones. The valleys are as Sinclair describes them and they do have the potential for agriculture he suggests. As will be discussed later, however, there are numerous complex problems

facing the people of the SHP which arise from the topography and climate of the province as a whole.

Soils

In most of the province, soils are generally derived from comparatively recent overlays from volcanic eruptions. Very few detailed investigations have been made of soil conditions in the province, except in a few specific areas, though these are now underway, particularly in the Tari area. (Wood.1979) However, according to a broad survey of the region in 1965 the dominating factor in soil formation appears to be the wet tropical climate, as similar soils have formed on a wide variety of parent materials over large areas; soil development is rapid and even some steep slopes have deep soils.(Commonwealth Scientific, Industrial Research Organisation.1965) The most common soils in the cultivated valleys are brown clays, but significant variations in soil structure and fertility are suspected between one valley and another, and even within valleys, leading to complex patterns of land settlement, usage and tenure. (McAlpine.1972)

Vegetation

Over most of the province the natural vegetation was originally rain forest, varying in density with altitude, with 'alpine grasslands' at around 3,500 metres. Forest still covers about 60 per cent of the land area, but in the areas of denser population most of the vegetation has been modified by man and is now either grasslands or gardens and forest regrowth. (Papua New

Guinea, National Planning Office,1977)

Agricultural Zones

The combination of topography and climate, particularly in relation to altitude, have produced marked zonal differences within the province, described as 'ecosystems' by Simpson. (1977) Three major land systems have been identified within the province; the lowlands, highlands and high altitude zones.

The lowlands are between 500 - 1,000 metres elevation, with a total land area of approximately 18,000 square kilometres. The population of this area is about 20,000, unevenly distributed, with the main pockets of population being around Erave, Mt. Murray, Lake Kutubu, Komo and Mt.Bosavi. Much of the landform of this area is rugged limestone and virtually uninhabitable. The population in the lowlands are shifting subsistence cultivators who depend on long fallow gardening, sago processing and hunting and gathering for their livelihood. At the lowest altitudes the pattern of settlement is not permanent; naturally occurring sago being the staple food and the people being classified as semi-nomadic. (Schieffelin,1976) At the upper altitudinal limits of the lowlands region there is more reliance on the cultivation of garden crops, especially taro and sweet potato, as staple foods. The land is cropped two or three times where the soil and climate is favourable; periods of fallow range from ten to twenty years. (Lea,1972)

Traditional agricultural systems are geared to the maintenance of nutrient cycles; the removal of forest cover leads to a rapid

degeneration of the soil which can only be restored through allowing the forest cover to regenerate. Heavy rainfall results in rapid leaching of nutrients and thus necessitates short periods of cultivation and long periods of fallow. Without artificial intervention in terms of added nutrients, the climate, topography and nature of soils determine a shifting agricultural system with low population density.

The highlands zone is between 1,000 and 1,800 metres and contains 75 per cent of the population of the province, about 180,000 people. Whereas the lowlands zone has a very low population density of about 1 person per square kilometre, the highlands area has 60 persons to each of its 3,000 square kilometres. There are however local variations, with population densities as high as 200 persons per square kilometre in the Tari, Mendi and Nipa districts. (Simpson,1977) As would be expected the main population concentrations are in the broad highlands valleys, which are climatically and topographically better suited to supporting dense populations. Most of the land in these areas can be used for agriculture, with the steepness of the land being the most significant constraint.

Subsistence agriculture in the highlands zone is based on the cultivation of the sweet potato,(Lea,1972) with the fallow periods for gardens varying from 5 to 10 years. In the most densely populated regions, a more sedentary form of agriculture is practiced, with short fallows of between 1 and 2 years. The possibility of shorter fallow periods is crucial to allowing greater density of population and more sedentary cultivation

than in the lowlands ecosystem.

Thus, although most of the forest cover has now been removed in the highlands area and replaced largely by man made areas of various grasses, lower temperatures and lower rainfall mean that nutrient depletion is slower. Thus, together with the use by highlands people of more intensive agricultural techniques, in particular 'mounding' (Brookfield and Hart,1971), allows for greater food production and thus very much higher populations.

The high altitude zone is that area above 1,800 metres and below about 2,400 metres, the latter being the limit to the cultivation of sweet potato. About 20 per cent, or 30,000, of the population of the SHP are in this zone,with main population centres being the Ialibu Basin, Upper Mendi,Margarima, Puijero and the Levari Valley in Koroba. The major difference between this area and the highlands area lies in the almost annual occurrence of frosts, referred to above. As a result of this, and poorer soil conditions,cultivators in these areas are noted for their mound-building activities, mulching and composting which, to some extent, offset the effects of minor frosts and poor soils. (Tompkins and Simpson,1977) Simpson stresses the critical nature of the upper altitudinal limit:

> "The upper limits(2,400m) of the High Altitude Zone can be considered at best, marginal for human occupation given the present level of agricultural technology and the crop varieties available. Whereas the maturation time for sweet potato ranges from 5-7 months in the Highlands Zone, it can take up to 15 months in the High Altitude areas, thereby creating problems for food production.
>
> (Simpson,1977:p.3.)

The province is, therefore, far from homogeneous at the very basic level of subsistence agriculture. Given that the population is almost entirely one of subsistence producers these variations are crucial. Food production is fundamental to the lives of the people and obviously critical to considerations of health. The constraints imposed by climate, topography and soils are fundamental to an understanding of present patterns of settlement, systems of production and exchange, and possibilities for change. As will be seen below, a number of serious problems have arisen when the complex ecological balance in these different zones is disturbed.

Modern History

Because of its isolated position, the Southern Highlands was the last major populated area penetrated by the Australian colonial administration. Prior to the Second World War there was very limited exploration of the area with 'first contact' generally being attributed to the major exploratory patrol of Hides and O'Malley in 1935. (Hides,1936) There is, however, a record of a patrol by Flint in 1922 which originated from Kikori Station in the Gulf of Papua and contacted the Samberegi Valley people in the Mount Murray area. (Joyce,1972) Apart from very limited exploratory patrolling, and the temporary establishment of a patrol post at Lake Kutubu in 1937[1] the

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(1) This first base camp in the province was established and serviced by seaplane. Catalina aircraft were used to service this outpost and patrols from this headquarters contacted most of the people in the eastern half of the province. The base was abandoned by the Australian administration during the second world war and was used by the Japanese. Coghill.B. District Office,Mendi. Personal communication.

Southern Highlands was left untouched, as an 'uncontrolled area' (Jinks et.al, 1973.), until exploration recommenced in 1949.

Until 1951, the province was administered from Goroka, some 500 kilometres distant, underlining the minimal extent of government activity. In September 1951, the Central Highlands District, which contained the main populated areas of the Territory of Papua and New Guinea was divided into three smaller districts. The southern sector was titled the Southern Highlands District and in the same year the district headquarters was established at Mendi. The only major change to the provincial boundary since that time was the inclusion of the Lake Kopiago area in Koroba Subdistrict in 1973. Airstrips and subdistrict centres were established during the 1950s, and this phase was not completed until 1965 with the opening of the Pangia patrol post. It was not until 1965 that entry restrictions were lifted and the district was said to be 'under control'. (Papua New Guinea, National Planning Office, 1977) Any coherent efforts at administration, delivery of services or 'development' are thus very recent. The 'post-pacification' period is less than fifteen years.

Road links with the rest of the Highlands and thence to the port at Lae, were non-existent until the late 1960s and then extremely poor until 1974, when a good road was opened linking Mendi and the eastern half of the province to the Highlands Highway.

Lack of access by road and the late date of the ending of

restrictions meant that the Southern Highlands did not share with other highlands districts the period of expatriate plantation establishment and early cash crop development. The absence of articulate business groups left the Southern Highlands 'firmly in the hands of its administration and the missions' (Blaxter,1977) One result of this is that, in comparison with other provinces, the Southern Highlands has had an exceptionally even distribution of infrastructure and government services, complemented by mission services, throughout the more densely populated areas of the province.(2) It must be stressed, however, that the level of infrastructual development and service provision is extremely low by national standards.

The history of government activity in the province is thus a very short one; present problems and development efforts must be seen in this context. Perhaps the most important feature of the late, and minimal, activity by outside forces is the range of possibilities which were open to the province in the 1970s and to some extent remain open today. Any notion of a '<u>tabula rasa</u>' must be resisted at all costs, as discussion of existing economic and social systems demonstrates; nonetheless the province, possibly more than any other and certainly more than most, is not carrying at the local level the extreme burden of complex systems imposed by colonial administrations. There is much in the comment by Foster-Carter, made in the context of a discussion of Marxist views of development: .

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(2) See Chapter 9 , for discussion of the distribution of health services.

> "One might have expected the interesting and far-reaching idea of 'an amalgam of archaic with more contemporary forms', which gives the backward countries development 'a planless, complex,combined character' (Trotsky) to have provoked a deeper study of the possible implications of the co-existence in space and time of what were originally postulated as successive stages [of development] , related but never contemporaries".
>
> (Foster-Carter,1974:p.74)

Demography

The National Census of 1971 estimated the population of the Southern Highlands to be 192,000.(3) That figure did not include the population of the Lake Kopiago area, previously part of the Western Highlands, which was added to the Southern Highlands in 1973. The Kopiago population was estimated by the 1971 census to be 10,000 in 1971; thus the total population of the SHP, as defined by present boundaries, was 202,000 according to the census of 1971. In 1975/76 the Southern Highlands Area Authority updated the population data from village records maintained by the Department of Provincial Affairs from council tax records. By this method the SHP population was estimated to be 235,000 in 1976. The latest available estimate, produced from a variety of provincial government sources, is 247,576 for 1978. (MacPherson.1979) Comparison of the 1971 and 1976 figures implies an average annual growth rate of about 3.1 per cent. This seems improbably high in the light of data collected by the Tari Pneumonia Research Unit, (Smith.1977), which suggest that the growth rate of the SHP population is closer to 2.2 per cent per annum. As noted earlier, the 1971 and 1976 population figures obtained by different methods

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(3) anticipated standard error of 3%

and the rate of increase cannot be accurately determined. It seems most likely that the 1971 census produced a significant underestimate of the total population, since similar deficiencies have been observed in other parts of the country. The growth rate of 2.2 per cent per annum suggested by the Tari data is given some support by a comparison of the 1976 and 1978 estimates which shows a growth rate only a little above 2.2%.

Again based essentially on the Tari data, mean family size in the province is estimated at 6.3.

With about 248,000 people, the SHP contains approximately 7.5 per cent of the total population of Papua New Guinea. It is, in a country which is predominantly rural, overwhelmingly rural; 98 per cent of the population is classified as rural in the SHP.

With a population density of 9.8 persons per square kilometre(4) the SHP is the most sparsely populated of all the highland provinces but exceeds the national average density.

The age and sex distribution(Table 7.1.)generally reflects the national demographic picture with the child population being at least as large as the active work force,which for practical purposes may be taken as the 15-44 age group.

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(4) Using 1978 population estimate of 247,576. For detailed information on the distribution of population see: Southern Highlands Area Authority.1976.

Table 7.1.

Sex and Age Distribution of Population. Southern Highlands and Papua New Guinea. 1971.

Age	Southern Highlands ('000,%) Males(%)	Females(%)	Total(%)	Total PNG (%) Male	Female	Total
0-14	44.8(23.4)	41.2(21.5)	86.0(44.8)	(22.6)	(21.2)	(43.8)
15-44	35.7(18.6)	45.4(23.7)	81.1(42.3)	(20.9)	(19.1)	(40.1)
45-64	12.0(6.3)	11.2(5.8)	23.2(12.1)	(6.2)	(5.8)	(12.0)
65 +	0.9(0.5)	0.6(0.3)	1.5(0.8)	(2.1)	(2.0)	(4.1)
Total	93.4(48.7)	98.4(51.3)	191.8(100.0)	(51.8)	(48.2)	(100.0)

(Source: Papua New Guinea, Bureau of Statistics.1974)

In 1971, the ratio of males to females in the SHP was only 0.95:1, in contrast to the national average of 1.08:1, this is despite an apparently better life expectancy for males and probably reflects the incidence of out-migration of males seeking work.

Literacy and Education

According to the 1971 census, some 10,500 people, or 8.1 per cent of the indigenous population over 10 years old, were literate; given the recent introduction of formal education, most of these would have been in the 10-20 age group. Some 6.4 per cent of those aged over 10 years could speak English and 5.6 per cent Tok Pisin(5); the rest would speak one or more of the indigenous languages or dialects of which about 16 are found in the SHP.

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(5) Tok Pisin, or Pidgin, is the major lingia franca in Papua New Guinea and is particularly strong in the Highlands and the North of the country. For discussion of the language see Mühlhausler,P.1976. Growth and Structure of the lexicon of New Guinea pidgin. Australian National University: PH.d.thesis.

Educational provision in all the highlands provinces lags behind that in those areas penetrated earlier. Table 7.2. shows the proportion of children enrolled at primary and secondary levels in 1975.

Table 7.2.

Percentage of children in specified age-groups enrolled in primary and secondary schools. Southern Highlands and Papua New Guinea.1975.

	7-10 year olds in Standards 1 to 6		13-16 year olds in Forms 1 to 4	
	% of all children in age group			
	Male	Female	Male	Female
Southern Highlands	60.2	30.7	9.9	1.8
Papua New Guinea	69.4	43.5	16.3	8.1

(Source: Papua New Guinea, Bureau of Statistics.1978.p.139)

The distribution of educational opportunity is highly unequal within the country with the Southern Highlands, along with several other highlands provinces being consistently lowest on all rankings. (Guthrie,1977; Jackson and Berry,1978)

The fairly recent introduction of education in which the Christian missions were largely instrumental, means that the number of Southern Highlands with any formal qualifications is still very small, as shown in Table 7.3. More recent data, if available, would indicate a considerable increase in the numbers qualified; there were, for example, about 45 Southern Highlands students at the University of Papua New Guinea in 1979.

Table 7.3.

Southern Highlands - Population over 10 years old. Formal qualifications or training.1971.

Type of Training	Number
University graduates	-
Other tertiary	26
Sub professional	26
Trade schools	17
Other formal	427
Unqualified	123369
Total	127,875

(Source: unpublished data Southern Highlands Management Authority.)

In summary, the province has an overwhelmingly illiterate population, with only a small minority having received any formal education. Although the growth of educational opportunity has been very rapid in recent years, only a very small proportion of the education budget has been spent on education outside the formal school system,(6) and therefore little has been available to the adult population.

The present low ranking of the Southern Highlands on indices of education may be seen as partly due to the relatively recent establishment of administrative control, as noted earlier. It was also the case, however, that during the 1960's, Australian colonial policy favoured concentration of investment in areas of

(6) In 1977, about 1% of the education budget was estimated as spent on 'non-formal', 'adult education'. personal communication. Provincial Education Officer,Mendi.

greatest return. The Southern Highlands, with no export crop, was, in relation to the national money economy, largely an unskilled labour supply area and received only limited services. This problem was compounded by the fact that production restrictions were enforced under an international coffee agreement, with the result that until 1972, the Southern Highlands was not officially permitted to plant coffee, with the exception of two small expatriate plantations. (Blaxter,1977)

Employment

As would be expected from the earlier discussion, the impact of paid employment is still very limited over the province as a whole. In 1977, it was estimated that less than 7,000 people were principally dependent on employment for their livelihood. (Papua New Guinea,National Planning Office,1977) Table 7.4. shows the domination of subsistence activities in the province.

Table 7.4.

Southern Highlands. Population over 10 years old, by employment status. 1971.

Activity	Males	Females (thousands)	Total(a)	(%)
Mainly subsistence and home duties	49.2	65.0	114.3	(89.4)
Mainly money-raising	4.8	0.5	5.3	(4.1)
School and other	6.2	2.1	8.3	(6.5)
Total	60.3	67.6	127.9	(100.0)

notes. a) excludes expatriates(596 persons)

(Source: Papua New Guinea, Bureau of Statistics.1974)

Thus, while the population of Papua New Guinea as a whole is primarily a rural population, affected by, but still largely outside the money economy, the Southern Highlands population is quite clearly one among the least affected by the penetration of the cash economy.

The major indication of the impact of the outside economy may be seen in the extent of cash cropping of export crops and livestock. Table 7.5 gives some estimates of those involved, in 1975, in these activities and does not include those selling traditional food crops, vegetables or animals at local markets. It can be seen from these figures that probably no more than 5,000 families were involved in smallholder cash cropping. As noted earlier, plantations of coffee, and expatriate owned cattle ranches, although significant in specific localities, were minimal.

Thus, in broad terms, and estimates are difficult, about 95 per cent of the total population of the province is dependent on agriculture, including school children; of about 35,000 families only about 5,000 are involved to any extent with cash crops or livestock. The number of people still mainly engaged in subsistence gardening and pig-keeping is estimated at about 85-90% of the population.

Table 7.5.

Southern Highlands. Estimates of number of families involved in market agricultural production.1975.

Crop(a)	Number of families(b)
Coffee(c)	2,976
Tea	50
Chillies	831
Caramon	20
Pyrethrum	30
Silkworms	150
Pigs(d)	182
Cattle	800
All Crops	5,039

notes. a) excludes crops grown for sale at local markets.

b) 'family' is here defined by the Department of Primary Industry as that group working from day-to-day with identifiable 'head of household'. For cattle, estimate based on 268 'cattle projects' of which 50% assumed to be group-owned with five people per group.

c) estimated 430 hectares total under coffee.

d) includes only pigs kept for 'outside' markets. Essentially this means 'western', imported types. Pig-keeping, of traditional types of pig, is virtually universal.

(Source: unpublished data, Department of Primary Industry and Southern Highlands Area Authority, Mendi.1978.)

The Provincial Economy

As noted above, the vast majority of the population are principally dependent on subsistence economic activity, with only a very small minority earning their main sources of income in the cash economy. This distinction is misleading, of course, to the extent that part of the population are engaged in either cash cropping, or sales of surplus food crops and livestock, through informal channels or local markets. The extent of

local trading in foodstuffs, live animals, salt,shells,personal ornaments and other items is hard to determine but is clearly significant, particularly if barter transactions and those required by social obligations are included. (Sillitoe,1975; Lederman,1978)

It is important to note here that when drawing distinctions between the 'subsistence' and 'cash' economies the intention is simply, and only in the broadest terms, to indicate the degree of penetration of the cash economy. Lederman argues convincingly the crucially important point that "subsistence economies" are not 'simple', 'hand-to-mouth' systems which produce no surplus and no exchange relationships of profound significance, incapable of change and improvement:

> "The main misconception about Highlands societies, and Mendi especially.....is that these societies have a 'subsistence economy', that is, that they have an economy in which production is geared towards immediate consumption goals. Behind many development projects is the idea that introducing a 'cash economy' into the rural system will increase rural production and improve rural living standards .....When modern market-oriented development projects are planned, it is well to recognise that the projects are not filling a vacuum.....Mendis, like other Highlanders already have a 'developed' economy..... thus, when development of a market economy is proposed, it is not merely taking up slack in Mendi production. Rather, such development proposals present Mendis with a choice between two alternative kinds of development. two very different ways of life and systems of values and social relationships."
>
> (Lederman,1979:pp.2-3 emphasis in original)

As noted earlier(7), the penetration of the market-oriented, cash economy is the crucial dynamic in social change in Papua

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(7) see chapter 4 for discussion of the nature of the Papua New Guinean economy.

New Guinea. The common fallacies, exposed clearly by Lederman, are, first, that traditional economies have a huge degree of slack which may easily be taken up by the introduction of production for the market, and second, that greater generation of cash is synonomous with 'advancement' and 'betterment'. Having said this, however, it remains true that the administration conceives of 'development' in terms of cash and the provision of services which must be bought for cash. The growth of the cash economy within the province is thus crucial, within such a framework of assumptions.

The very limited extent to which the cash economy has penetrated the province and the heavy dependence on imports and government transfers are clearly shown in tentative estimates of the structure of provincial gross domestic product for 1975/76.(6) These suggest that the non-market sector accounts for about 57 per cent of the total value of output in the province, compared with a national figure of 16 per cent. The market sector, 43 per cent, the Government was responsible for about three quarters with only a quarter of the market sector, or 11 per cent of the total GDP, representing the value added by expatriate and indigenous enterprises in the private sector, such as trade stores, construction, sawmilling and transport.

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(6) Based on unpublished data from Southern Highlands Area Authority and Provincial Economist, Department of Primary Industry, Mendi.

Estimates of per capita income are notoriously difficult where there is a substantial non-market sector; values must be put on subsistence output and self-rendered services such as housing. The estimated per capita income of the 89 per cent of people in the "pure" subsistence sector was K66 per annum in 1976. (Papua New Guinea, National Planning Office,1977). The remaining 11 per cent, consisting of public servants, missionaries, a few other expatriates and cash crop farmers and their families, had an average per capita income of k420 per annum. This categorisation is misleading, however, since a number of Southern Highlanders have incomes on a per capita basis between these two figures. According to Southern Highlands Development Authority estimates, approximately k1.2 million per year, or 10 per cent of all central and local government expenditure in the province, is paid to casual labourers; for road maintenance, work at administrative centres and so on. At the 1976 minimum wage of K1.70 per day, a casual labourer working two days per week would earn an additional K170 per year, raising the per capita income of the average family of 6.3 persons by about K27, or 40 per cent, to K93 per annum.(9)

The heavy dependence of the province on central government financing both for new activities and for the maintenance of

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(9) about £60 per annum at the October 1979 rate of exchange. Calculations of per capita income such as this can only indicate the general level of income, and then only very crudely.

existing services, is demonstrated by the fact that the Government accounts for 66 per cent of all cash expenditure in the province, about 65 per cent of consumption and 70 per cent of gross investment; nearly all of this government expenditure represents a straight transfer into the province from central government, since the tax base within the province is so small.

The dependency of the provincial economy on the rest of the country and the market economy beyond, is illustrated by the fact that imports supply over 40 per cent of total market demand, including 30 per cent of government expenditure. Even more striking, however, is the fact that 40-45 per cent of these imports are of goods such as canned food, fuel, clothing,beer and tobacco, sold mainly through trade stores, which make up approximately 60~~6~~5 per cent of total private consumption expenditure. This reflects not only the presence of expatriates(10), but also the tendency of local salaried employees and other cash earners to consume imported goods. The province is clearly dependent on imported capital goods, manufacturers and motor fuel for the forseeable future; however the pattern of consumption expenditure does suggest the potential for provincial 'import-substitution' to meet local market demands for foodstuffs, at least to the extent that preferences for such things as imported rice and canned fish have not been taken up. The major barrier at present to the development of internal markets in food is the inadequate transport system.

In summary, the province has a predominantly 'non-market' economy in that the vast majority of the population are engaged

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(10) estimated at less than 700 in 1976, or 0.3 per cent of the provincial population.

primarily in subsistence production. This pre-existing economy is complex, with considerable local variation largely related to topography, climate and altitude. Penetration by the cash economy is relatively recent and the province did not share in the cash crop development of the 1960s which took place in a number of other highlands provinces. Government activity is paramount in the provincial cash economy and as a consequence of improved communication and the beginnings of the cash economy there have been dramatic changes in both the need and demand for cash incomes. As was argued in 1977, however, although general statements may be made with some confidence, there is very little information on many of the most fundamental issues:

> "Not sufficient is known about the subsistence farming system, the capacity of the available arable land to support the increasing population, the real magnitude nor the real causes of malnutrition, disease patterns and a variety of related problems.
> There is inadequate knowledge of the people themselves, their aspirations, motivations, values, traditional mores and taboos, village organisations and land tenure systems.
> Much of the base data on population, social indicators, services and functional expenditures is collated at a national level and tends(if available) to reflect only inter-Provincial comparisons and not status and progress between areas within the Province.
> There is little emphasis on programmes to fill these knowledge gaps, which are inhibiting intelligent and rational planning and investment, and there are no resource specialists in the appropriate fields".
>
> (Papua New Guinea,National Planning Office,1977:p.23)

Economic Development Plans

Beginning in 1972-73 the province began to benefit from the change in national development approach under the new Papua New

Guinea government.[11] The shift in priorities from concentration of investment for fast growth towards a policy of geographically more balanced development made the Southern Highlands an obvious target for special treatment. This may be seen to some extent in the allocation of Rural Improvement Programme funds(Colebatch,1977). However, there was evidence that, in general, such programmes were failing in their stated intention of correcting unbalanced development by continuing established trends by which assistance tended to go to those areas, and individuals, with demonstrated success in the money economy. (Jackson,1975)

With the formulation of the National Development Strategy in 1976[12] the basis was more firmly laid for a pattern of development at provincial level. The emphasis on decentralisation of administration and policy-making in the National Development Strategy found final expression in the formation of provincial government[13], which enabled the administration to formulate coherent development plans for the province.

It has, in fact been argued that the province had certain features which led to its administration being particularly effective in the fight for resources. (Blaxter,1977)

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(11) See Chapter 4

(12) See Chapter 4

(13) see below for discussion of public administration.

> "The remoteness of the Southern Highlands and the absence of capitalist penetration has meant that most new activities were dominated and co-ordinated by kiaps, and exceptionally able Provincial Commissioners reinforced this pattern. There has been a firm tradition of co-ordination among department, resisting pressures from Port Moresby departmental headquarters for separate action, and a resultant high morale among the public servants at both the provincial and district level which is rare in Papua New Guinea".
>
> (Blaxter,1977:p.3)(14)

The most significant result of the concern with development strategy, the preparation for eventual provincial government and the particularly strong administration in the province was the preparation of the Southern Highlands Development Project(Papua New Guinea,National Planning Office,1977). This was essentially an outline economic development plan for the province, based on funding from the World Bank. The formulation of the project, its style, and its progress to the point of funding in 1978 were largely affected by a relatively small group of administrators in the Southern Highlands, together with a group of committed individuals in the capital.

The beginnings of the project were discussions with World Bank staff in August 1974, when finance was sought for road construction, seen as a key to provincial development.(Papua New Guinea,National Planning Office,1977.) Subsequent visits by World Bank experts in 1975 and 1976 led to the preparation

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(14) 'kiap' is a Tok Pisin word, derived from the German 'kapitan' which has passed into common English usage and refers to local level administrative officers. 'District Officer' is the more familiar nomenclature in other parts of the world.

of a World Bank report and the description of an integrated area development project involving tea and coffee plantings, road construction and health improvement programmes.(15) Central government indicated support for the project and the proposal was refined at the provincial level. A further World Bank visit was made at the end of 1976 and a full World Bank Appraisal Mission visited the province in September,1977.

Significant amendments were made to sections of the original project proposal but funding was given for the majority of the plans outlined. The project is funded through a system of loans, channelled through Central Government, but earmarked for the Southern Highlands, as part of the National Public Expenditure Plan.(16)

The project is concerned primarily with the development of the cash economy in the province; rural development is seen as being concerned with the 'modernisation' and monetisation of rural society. This emphasis on the transition from traditional isolation to integration with national and international economies, through cash crop production is a characteristic of the policies of the World Bank, which is the largest single source of loans for agricultural development in the third world. (Payer,1979) While acknowledging the basic intention of the project, the

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(15) It is clear from discussions with World Bank staff that the initiative and most ideas for project preparation originated within the province. personal communications, World Bank Appraisal Mission. Mendi. September.1977.

(16) see Chapter 4 for discussion of the NPEP.

National Planning Office stressed the inclusion of 'non-economic' components and the notion of 'integrated development':

> "....an increasingly important feature of Government policy, as provincial government and decentralisation become established, is the promotion of integrated projects aimed at redevelopment of the less developed provinces or areas of the country. Examples of this integrated approach to development planning which emphasises planning and decision making at the provincial and local level are the ongoing East Sepik and Southern Highlands Integrated Rural Development projects.....Although essentially a project designed to promote economic development, through the construction of roads and the expansion of tea and coffee holdings, the (Southern Highlands) project also includes components aimed at improving the health and educational status of the province and maintaining the subsistence base".
>
> (Papua New Guinea, National Planning Office,1978:pp.70-71)

Total project costs are estimated at K22.4 million, of which 40 per cent represents foreign exchange costs; table 7.6. summarises the cost estimates of the project.

It may be seen from the range of projects funded that attempts are being made to overcome many of the problems outlined earlier, within the context of cash crop development.

The AFTSEMU represents an attempt to establish a combined research and action unit which will develop the knowledge and capability to effect improvements in the subsistence sector, essentially to combat nutrition.

The isolation of the western part of the province will be considerably reduced if an adequate road is put through from Poroma to Koroba. Some indication of the difficulties of the

Table 7.6.

Southern Highlands Project. Cost estimates by component.

Component	Estimated Cost (k'000)
AFTSEMU (a)	1,482.3
Coffee	1,795.5
Tea	3,563.4
Cardamons	147.5
Silk	334.8
Electrification	430.0
Health	1,817.7
Poroma to Koroba road	5,689.2
Culverts and small bridges	713.0
Formal education	1,241.5
Non-formal education	643.7
SHMA building, Mendi. (b)	50.5
Provincial Project management	372.5
Base cost estimate	18,281.6
Physical contingencies	1,244.0
Expected price increases(c)	2,894.1
Total project cost	22,419.7

notes a) Agricultural Field Trials, Studies, Extension and Monitoring Unit.

b) Southern Highlands Management Authority

c) Over 5 year implementation period 1978-1982.

(Source: unpublished data. Southern Highlands Management Authority, Mendi, April,1979).

terrain may be seen in the cost of the proposed road, over K5 million for about 160 kilometres direct distance.

The climate and soils of the province severely limit the range of cash crops for export which can be grown and thus

coffee, tea and, to a much lesser extent, cardamon and mulberry are seen as the key to the development of the cash economy.

Cash crop development is planned on the basis of a complicated system which includes estate production indirectly controlled by the provincial administration, community group production, and smallholder production. Table 7.7. indicates the intended pattern of production.

Table 7.7.

Southern Highlands Project - Proposed Production of major cash crops, by system of production and land area. 1978-82.

Crop	System of Production			
	Smallholders	Groups	Council Blocks	SHDC Estates(a)
	(hectares)			
Coffee	530	450	300	-
Tea	50	-	-	800
Cardamons	-	-	100	-
Mulberries(Silk)	40	-	-	-
TOTALS	620	450	400	800

notes a) Southern Highlands Development Corporation

(Source: unpublished data Southern Highlands Management Authority. April,1979)

The major intention is to'attract' subsistence farmers into agricultural production of export crops, on a 'smallholder' basis. In the case of coffee it is intended that the pattern of other highlands provinces will be repeated, with more than two thirds of coffee being produced by smallholders. The establishment of

'group blocks' may be seen as an attempt to overcome problems of individual smallholder production, where pre-existing social systems emphasise communal activity. In tea production, the proposed blocks are seen as 'nucleus estates' around which smallholder tea production would be encouraged. The longer-term expectation is therefore that tea would be primarily a smallholder industry.

The involvement of local councils, particularly in coffee production, and the provincial government, through the Southern Highlands Development Corporation's control of the proposed tea estates is intended to provide revenues for these bodies, in addition to the tax revenues generated by increased smallholder incomes.

In terms of the transition from a primarily subsistence economy to one based on cash crops the development of smallholder production is clearly crucial. To the extent that this system of production takes hold, the fundamental nature of the provincial economy will change. Such a fundamental change is of course the purpose of the project as a whole. Some indication of the scale of the proposed change may be seen from estimates of the number of smallholders to be involved in cash crop production during the project period; these represent, of course, only the beginnings of smallholder production, the basis for longer-term transformation. Table 7.8. shows estimates of numbers of smallholders by type of crop.

Based on a series of assumptions regarding yields, marketing, and world commodity prices, the anticipated incomes to be derived

Table 7.8.

Southern Highlands proposed smallholder production number of smallholders by type of crop. 1978-82.

Crop	Smallholders(number)
Coffee(smallholder	5,000
Coffee(group blocks)	1,800
Tea	125
Mulberries(silk)	400
TOTAL	7,325

(Source: unpublished data, Southern Highlands Management Authority, April.1979)

by smallholder producers have been estimated.(Table 7.9.) It can be clearly seen that if these estimated returns are achieved the impact on income levels, for those involved in smallholder production, will be dramatic.

Table 7.9.

Southern Highlands. Estimated annual income(a) from smallholder production.(1977 values)

Crop	Estimated Income(kina)
Coffee(smallholder)	110
Coffee(group blocks)	70
Tea	330
Mulberries(silk)	n.a.

note a) at full development

(Source: unpublished data Southern Highlands Management Authority. April,1979).

In addition to anticipated smallholder incomes, the block developments and processing facilities are expected to create, at full development, about 1,500 man-years of wage employment within the province.

In siting the proposed agricultural projects a major consideration was to avoid the serious social effects of plantations and systems of migrant labour. The intention is to allow large numbers of Southern Highlanders to participate in the cash economy without seriously dislocating existing social systems by demanding labour migration. Similarly, as much wage employment as possible is intended to be part-time rather than full-time. The land to be used for coffee and tea is argued to be presently unsuitable for subsistence food production, either because of poor quality or frost risk. (Papua New Guinea, National Planning Office, 1977) (see Figures 7.3 and 7.4)

It is not possible to assess the impact of this project on the province at this stage. Despite an awareness of the possibilities of serious social consequences, reflected in attempts to develop systems of production related to existing social and economic conditions, the scale of the proposed changes is enormous. By injecting a massive amount of resources into the province and attempting to base development on smallholder production of export commodities the project will transform the province in a very short space of time.(17)

The Southern Highlands may be seen as representing, in dramatic and extreme terms, the transformation of rural society. Within

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(17) see Chapter 4 for discussion of the impact of rapid market-oriented economic development.

Fig. 7·3 SOUTHERN HIGHLANDS - Roads

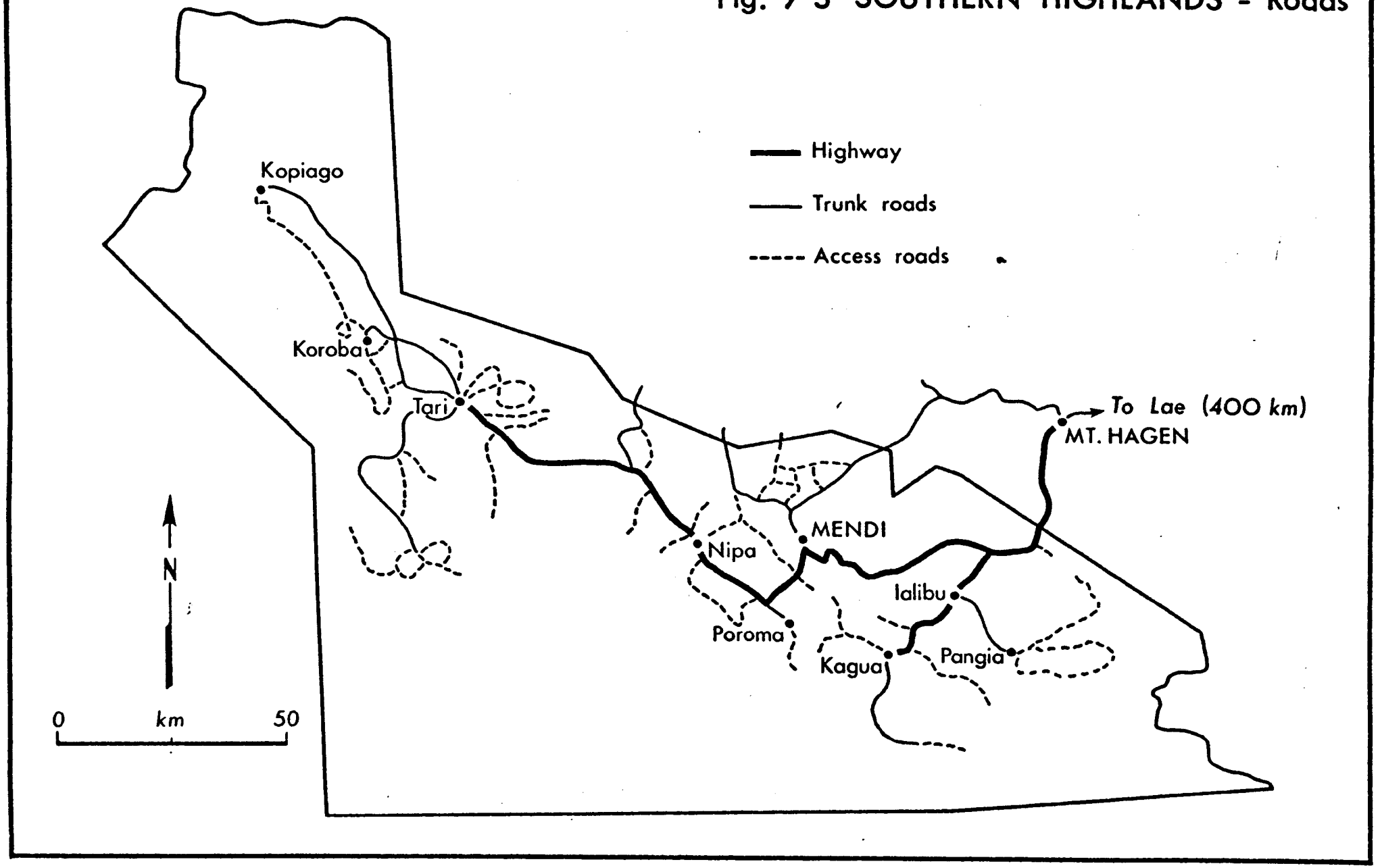
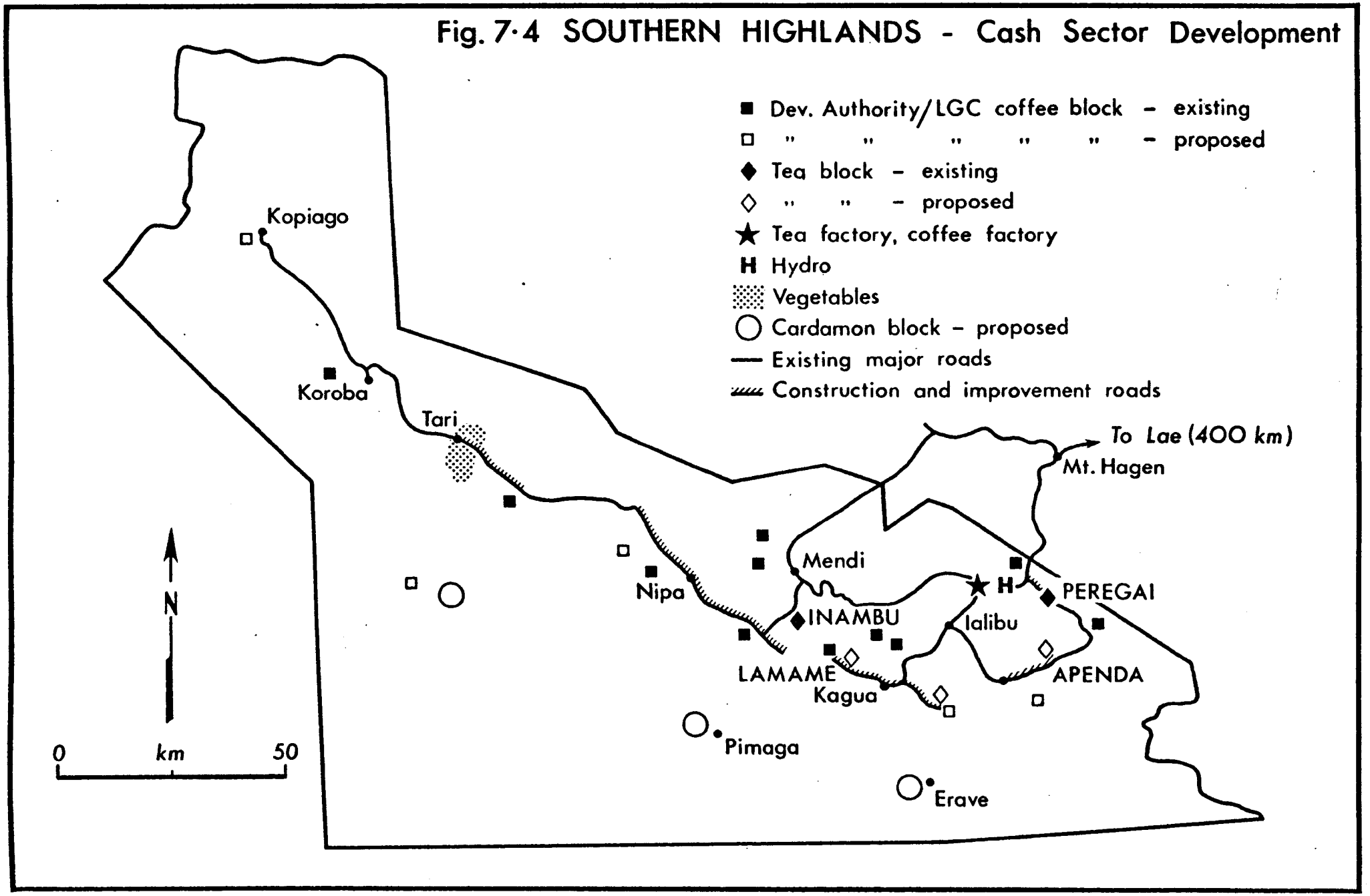


Fig. 7·4 SOUTHERN HIGHLANDS - Cash Sector Development



the next five years, the province will change faster than at any time in the past. The range and depth of the changes which are now taking place are the most serious problems facing Southern Highlanders concerned with the development of their province.

At the end of 1978, the National Planning Office reported on the project, some components of which having been proceeded with in expectation of World Bank funding:

> "Considerable progress has been made on the construction of the economic infrastructure of the project,particularly the roads and tea and coffee development. This progress has been dependent to some extent on the fact that the province has access to qualified manpower which is independent of the project, particularly in engineering and plantation management. Some progress has been made in the areas of non-formal education and health, however this has been mainly through the efforts of provincial staff with national government assistance. The Agricultural Field Trials, Studies, Extension and Monitoring Unit(AFTSEMU) has been held back due to the difficulties of recruiting necessary personnel".
>
> (Papua New Guinea,National Planning Office,1978:p.141)

Public Administration

With decentralisation, the Southern Highlands now has a large degree of autonomy with regard to administration and policy making. (Papua New Guinea, Department of Decentralisation,1978) The structure of the Southern Highlands Provincial Government is shown in Figure 7.5; its interrelationship with government departments is shown in Figure 7.6. The administrative structure of the World Bank funded Southern Highlands Project is shown in Figure 7.7.

Since the establishment of provincial government in August 1978, the post of Provincial Commissioner has been phased out and the senior public servant in the province is now the Provincial Secretary, who provided administrative and technical services to the provincial cabinet and provincial assembly. In addition the Secretary chairs the provincial coordinating committee which consists of the provincial heads of the government departments located in Mendi, the capital of the SHP. The provincial coordinating committee is intended to provide a planning and advisory service for the political bodies in the province.

The province is divided internally into seven administrative districts, each containing two local government councils, and each district has a district coordinating committee, chaired by the local-level administrative officer and consisting of the senior representative of the various departments in the district. The committee's role is to discuss, propose and implement projects at village level.

These are the principal bodies of administrative coordination, aside from those established specifically for the administration of the Southern Highlands Project.(18)

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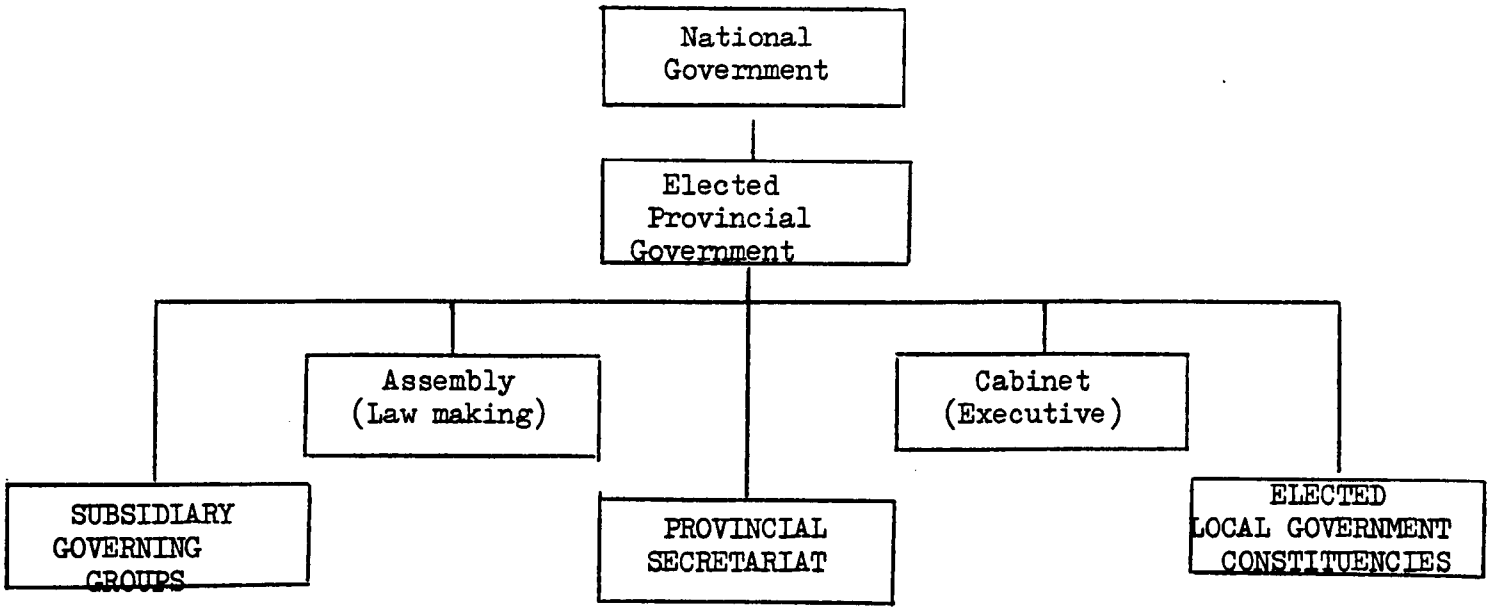
(18) Considerable changes are currently taking place in the pattern of internal administration. Many of these are related to the desire to further decentralise within the province. personal communication. Provincial Secretary, Mendi.April,1979.

Figure 7.5.

Southern Highlands Provincial Government-Organisation Chart



Notes:-

1. The Provincial Government will consist of:

   (a) The Assembly, having all the law making powers capable of being conferred on it by the laws of the National Constitution and;

   (b) The Cabinet, responsible for the executive government of the Southern Highland(SHP)province.

2. There are 14 local government councils consisting of 26 constituencies, the boundaries of which are fixed by a Boundaries Commission which tries to ensure that each constituency has about the same number of people.

3. The Assembly consists of the Premier elected by the people of the SH province, and Members appointed by the assembly, of which there can be no more than two appointed Members at a time.

4. The Cabinet consists of the Premier; the Deputy Premier; and at least 5 and not more than 7 members of the Assembly; nominated to be Southern Highlands Ministers by the Premier and approved by the Assembly by an absolute majority vote.

Figure 7.6.

Southern Highlands Province.

Provincial Government/Government Department Relationships.

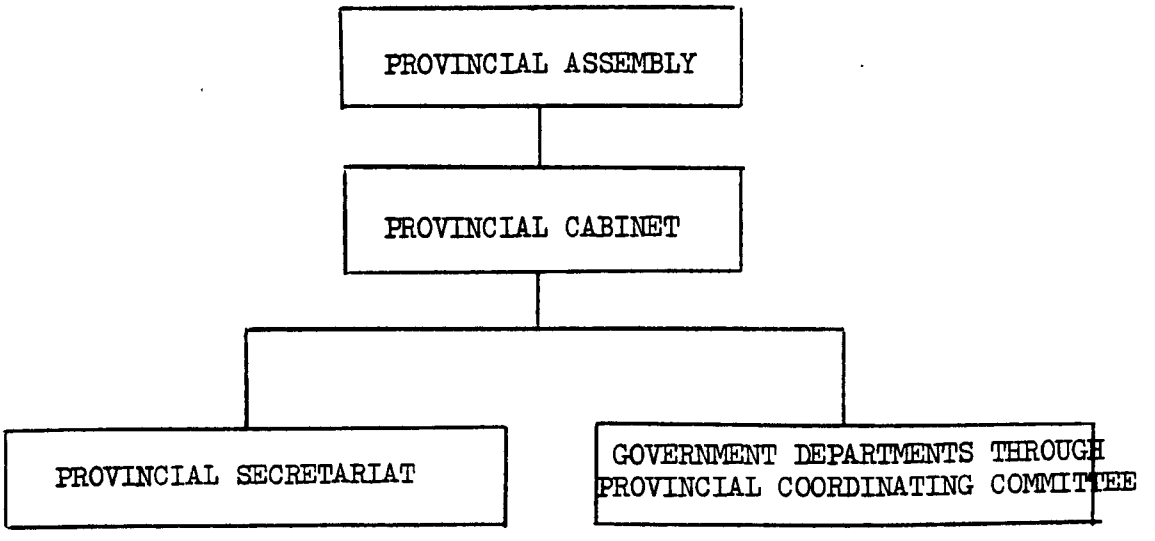
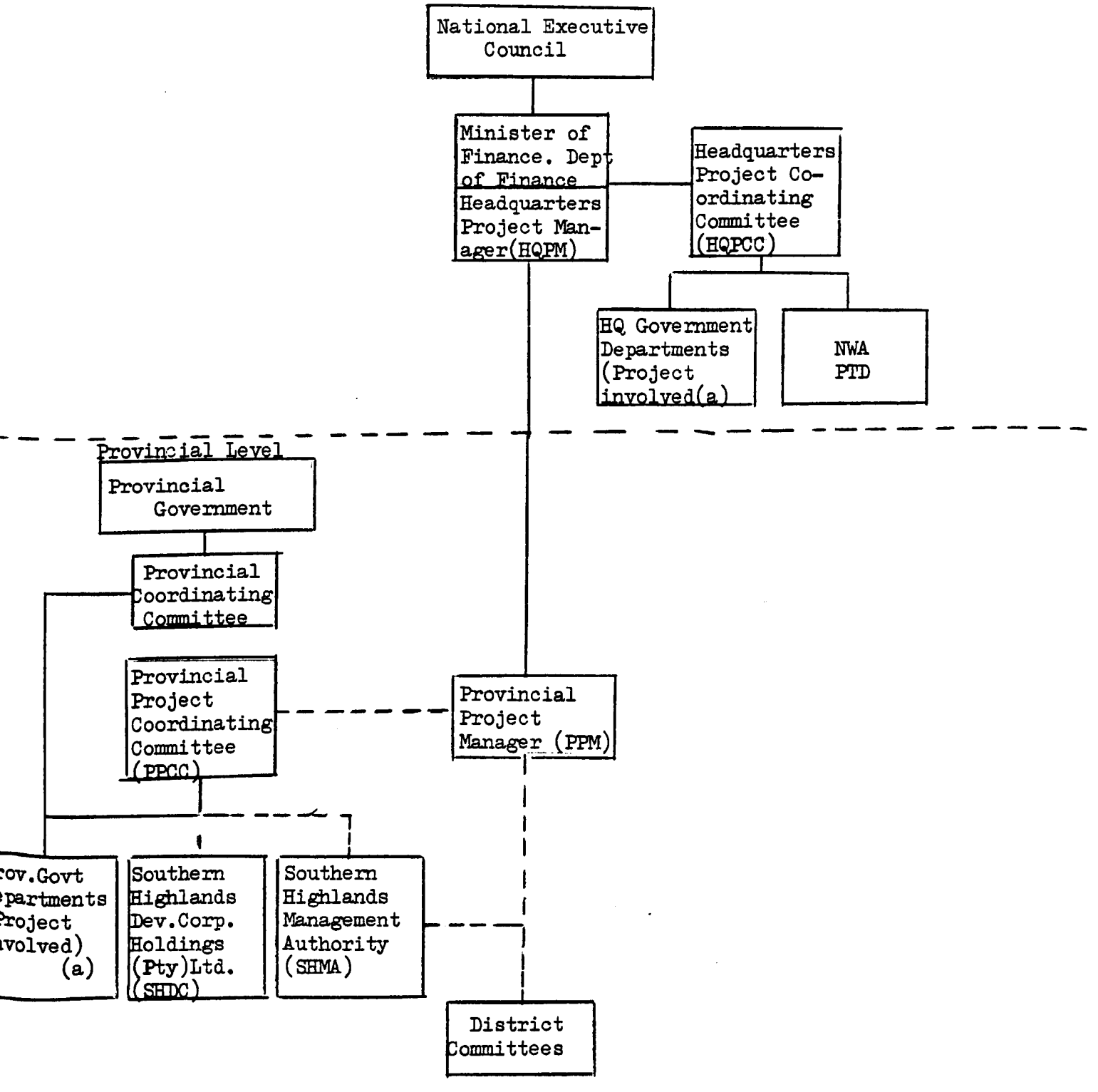


Figure 7.7.

Southern Highlands Project - Administrative Organisation



a) Departments of Finance, Provincial Affairs, Primary Industry, Health Education, Office of Business Development, National Works Authority, Posts and Telegraphs.

Local government councils form the most significant formal political units at local level. There are fourteen councils in the province and they have been established since the 1960s. The councils have developed a reputation for strength and effectiveness since then, largely, it is argued, because government departments have been consistently encouraged to work through them. (Blaxter,1977) When the Southern Highlands Area Authority was established in 1972 it consisted largely of the presidents of the local government councils. Until the establishment of provincial government, the area authority was the major political body in the province, responsible for a good deal of provincial decision-making.

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CHAPTER 8 - HEALTH STATUS OF THE SOUTHERN HIGHLANDS PROVINCE

The Available Data

By Papua New Guinean standards, the health of the people of the Southern Highlands is very poor.(1) Available data is incomplete and most often out of date, reflecting not only the inadequacy of data collection methods but also the more fundamental problem that a large proportion of sickness and death occurs in rural areas remote from health facilities. Quite simply, the available figures can indicate only those patterns of morbidity and mortality reflected by the distribution and nature of health facilities, with the exception of some information obtained from limited epidemiological surveys which have been done in the province. Table 8.1 compares the province with the rest of Papua New Guinea on a number of health indices and demonstrates clearly its relatively low position.

In 1978, the National Planning Office ranked the province as second lowest of all provinces in the country on a health status index based on a rural life expectancy, rural child mortality and child malnutrition.(Papua New Guinea, National Planning Office, 1978.)

Mortality

Table 8.2. shows leading causes of death in the province and was compiled from the best available information in April,1979.

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(1) See Chapter 5 for discussion of the situation in Papua New Guinea as a whole.

Table 8.1.

Health Indices. Southern Highlands and Papua New Guinea 1971. (rates per 1,000)

INDEX	WORST DISTRICT	SOUTHERN HIGHLANDS DISTRICT	AVERAGE FOR THE COUNTRY	BEST DIS-TRICT	POSITION OF S.H.D. AMONGST THE DIST.
URBAN CHILD MORTALITY(a)	170	170	115	80	20
RURAL CHILD MORTALITY(a)	229	229	195	101	20
TODDLER MORTALITY(b)	20	20	13	5	20
MALNUTRITION CASES AS PROPORTION OF INSTI-TUTIONAL ADMISSIONS	92	19	16	1	17
MALNUTRITION DEATHS (c)	22	22	6	0	20
LIFE EXPECTANCY URBAN	50	50	56	62	20
LIFE EXPECTANCY RURAL	44	44	48	60	20

Notes: a) birth to 4.99 years
b) 1 to 4.99 years
c) for 1972

(Source: Papua New Guinea, Department of Public Health,1974: Appendix 3.2, Appendix 3.3, Table 4.1.)

The Mendi Hospital death register is assumed accurate for all deaths occurring within the hospital but does not include deaths following discharge from hospital. The figures for Rural Health centre deaths were compiled from copies of death certificates held by the Provincial Health Office. There is at present an incomplete system of certification and furthermore not all health centres send copies of death certificates to the Provincial Health office. These figures tend, therefore, to reflect the pattern of deaths in those health centres which are more zealous in their

reporting of deaths to the provincial office. The Tari Basin figures were produced by a combination of health centre records and results of surveys by members of the Tari Pneumonia Research Unit. Given the very different bases of these figures and serious problems of classification of cause of death, particularly in the case of the Rural Health Centre death certificates, there is no basis for comparison between them. They do not, with the partial exception of the Tari figures, show causes of death among the population as a whole, but causes of death at treatment centres. The proportion of all deaths occurring in hospitals, for example, has been estimated as 10 per cent for Papua New Guinea as a whole and is lower for the Southern Highlands Province. (Papua New Guinea, Bureau of Statistics,1978).

Whatever the deficiencies of the data available, a clear picture does emerge of the commonest causes of death in the province. Pneumonia, and other respiratory diseases are the most common cause of death, with gastro enteritis and dysentery being the second most common cause. In the highlands area of the province pig-bel is a frequent cause of death,(2) particularly among the children, and in lower altitude areas malaria is a serious problem. Perinatal deaths are seriously understated in the figures from health records, as admissions for childbirth are generally low in the province.

It was possible to obtain some indication of the age pattern of leading causes of death from the Mendi Hospital records and

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(2) See below , for discussion of pig-bel(enteritis necrotians)

Table 8.2.

Southern Highlands Province.

Leading Causes of Death

	Mendi Hosp.1976-8		RHC 1978		Tari Basin 1971-6	
Diseases	Number	%	Number	%	Number	%
Pneumonia	42	17.3	37	31.9	312	19.7
Bronchitis/ emphysemia (a)	4	1.7			182	11.3
Other respiratory	7	2.9	2	1.7	127	7.9
Gastroenteritis/ dysentery	25	10.3	15	12.9	140	8.7
Pig bel	36	14.8	7	6.0	107	6.7
Other GIT (b)	19	7.9	7	6.0	116	7.2
Cardiovascular	17	7.0	1	0.9		
Meningitis	8	3.3	4	3.5		
Other CNS (c)	3	1.3	2	1.7		
Malaria	5	2.1	9	7.8		
Anaemia	2	0.8	3	2.6		
Other infective	15	6.2				
Perinatal	32	13.2	17	14.7		
Accidents/Traumas	7	2.9	2	1.7	96	6.0
Malnutrition	2	0.8	3	2.6		
Renal Disease	4	1.7				
Others	4	1.7	7	6.0	164	10.2
Unknown	10	4.1			352	22.3
Total	242	100.0	116	100.0	1606	100.0

Notes: a) Tari figures tend to merge chronic lung disease and pneumonia in this category.

b) Gastrointestinal tract

c) Central nervous system

Sources:- Mendi Hospital - Hospital Death Register

Rural Health Centres-Sample of Death Certificate, Provincial Health Office, Mendi.

Tari Basin - Riley.I. 1977. 'Mortality Rates and Health Services in the Highlands of PNG'. Tari Pneumonia Research Unit. mimeo.

this is shown in Table 8.3. Again, the figures must be treated with extreme caution as showing only the pattern of deaths at the hospital and not necessarily indicating accurately the pattern in the province.

Table 8.3.

Southern Highlands Province Age distribution of the common causes of death. Mendi Hospital July, 1976 - June, 1978. (a)

	Cause of Death									
	Pneumonia		Pig bel		Gastroenteritis /dysentery		Meningitis		Cardio-vascular	
Age	No.	%	No.	%	No.	%	No.	%	No.	%
0-11 mths	19	45.2	2	5.6	3	12.0	4	50.0	2	15.4
1-4 yrs	11	26.2	9	25.0	17	68.0	4	50.0	3	23.1
5-9 yrs	1	2.4	18	50.0	1	4.0	-	0	-	0
10-19 yrs	-	0	5	13.9	1	4.0	-	0	-	0
20-29 yrs	-	0	1.	2.8	-	0	-	0	1	7.7
30 yrs	11	26.2	1	2.8	3	12.0	-	0	7	53.9
TOTAL	42		36		25		8		13 (b)	

notes: a) The ages of the 32 women dying in childbirth were not recorded
b) Ages not recorded in four cases

(Source: Mendi Hospital records)

It can be seen that pneumonia and gastroenteritis/dysentery affect largely the youngest age groups with pig-bel affecting children and young people more generally and the 5-9 year age group in particular.

The data, as noted earlier, is extremely poor and really does not allow of any serious analysis. Given the very many serious qualifications which must be made regarding its reliability and validity, it does indicate a pattern of mortality similar to that noted earlier for Papua New Guinea as a whole. Thus the vast majority of deaths are from infections which are potentially treatable at health facilities other than hospitals and by staff with relatively restricted levels of training. It must be noted finally, that these mortality data seriously understate the significance of malnutrition. As can be seen, the number of cases where malnutrition is recorded as the cause of death is relatively small; the number of cases in which malnutrition contributed to death from diseases which might otherwise not kill is very much higher , most especially in the younger age groups.(3)

Morbidity

As with mortality, it is extremely difficult to produce a detailed picture of morbidity from the available data. What follows is an attempt to use such data as is available to indicate the pattern of morbidity. Four major sources were used for this; records of inpatient admissions and discharges, records of outpatient treatment, records of notifiable diseases, and results of surveys. For the first two of these in particular, there are serious problems of classification, related partly to inadequate record-keeping but also to fundamental questions of diagnostic consistency.

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(3) Personal communication. Dr.John Millar, Medical Superintendent,Mendi Hospital.

Table 8.4. summarises information on inpatients at health centres and Mendi Hospital; it is clear from this that the pattern noted earlier in discussion of mortality is largely repeated, though the greater significance of malaria must be noted.

Table 8.4.

Southern Highlands Province

Leading discharge diagnoses for patients admitted to all Rural Health Centres and Mendi Hospital for 6 months during 1978. (a)

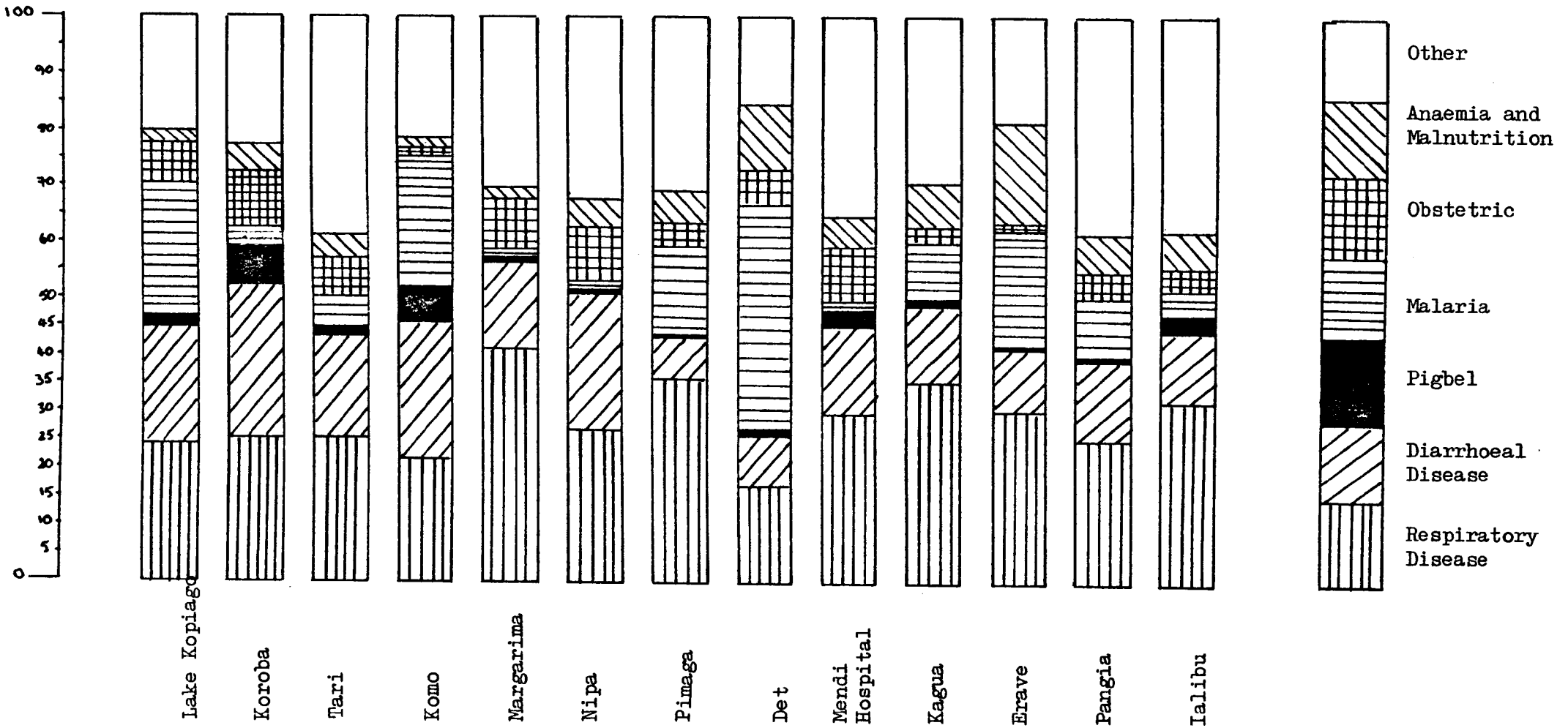
Disease	Number of Patients	Percentage
Pneumonia	2352	22.9
Other respiratory	540	5.3
Gastroenteritis	1084	10.5
Dysentery	416	4.0
Pig bel	197	1.9
Malaria	1535	14.9
Obstetrics	635	6.2
Malnutrition	301	2.9
Anaemia	349	3.4
Other	2879	28.0
Total	10288	100.0%

notes: a) due to incomplete records time period varies
b) it was not possible to identify re-admissions

(Source: Mendi Hospital records and Rural Health Centre returns held at Provincial Health Office, Mendi)

Figure 8.1. shows the variation in admission patterns between treatment centres. Perhaps the most significant difference between different parts of the province is in the incidence of malaria, which varies quite dramatically with altitude.

Figure 8.1 Southern Highlands - Leading reasons for Admission to Health Centres for a six month period during 1978 - by proportion of total admissions.



Source: PHD Records, Mendi.

Analysis of outpatient consultations may also indicate the general pattern of sickness, but here a yet stronger note of caution must be entered. Records are kept in such a way that some health workers make note of symptoms, others of diagnosis. When analysing the records it was necessary to produce broad categories of complaints and frequently to allocate diagnoses or statements of symptoms to these categories by informed judgement.(4) In a number of cases more than one symptom or diagnosis was recorded for a specific treatment episode. In such cases, each was categorised; the figures do not, therefore, show the number of patients but the pattern of sickness. Table 8.5. gives figures for Det health centre for February, 1979; there is no reason to believe that any significant difference in the general pattern would be observed at any other time of year.(5) The incidence of malaria at Det is higher than at other health centres in terms of admissions, (Figure 8.1.), and must be expected to be unrepresentative of the whole province with regard to outpatient treatment of this condition. Variations in admissions policy, access and utilisation make any rigorous discussion impossible, however, and the Det outpatient figures are given simply as an indication of broad patterns of symptoms.

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(4) I am grateful to Dr. Lynne Clarke, Provincial Health Officer, Mendi for her advice on this matter.

(5) Personal communication, Sister Godentia, Det Health Centre, Southern Highlands Province.

Table 8.5.

Southern Highlands Province.

Outpatient consultations by symptom/diagnosis. Det Health Centre, February,1979.

Symptom/Diagnosis	No of Cases	Percentage
Cultaneous	603	40
Respiratory	220	15
Fever/Malaria (a)	235	16
Diarrhoeal diseaseG.K.(b)	97	7
Aches and Pains	186	12
Conditions of the eye	57	4
Conditions of the ear	30	2
Other	57	4
Total	1485	100

notes: a) Malaria 214. b) G.I. - gastro intestinal.

(Source: Det Health Centre Outpatient records)

The analysis of outpatient symptoms shows the importance of sores, cuts, burns and skin diseases. In the case of the Det data virtually all 'cutaneous' cases were infected cuts and sores, with only 20 cases of scabies in the total of 603. As can be clearly seen, infections predominate at this level of treatment; conditions which are simple to treat and to a large extent related to environmental and hygiene standards.

At the aid-post level, which is the level of treatment used by most people most of the time, the qualifications noted earlier regarding the reliability of data on symptoms and diagnoses, apply with even greater force. Table 8.6. is based on records from two groups of aid posts, those in the Det area and those in

the area around Mendi. Only major symptoms/diagnoses are given; no other single condition, falling outside these categories, was more than one per cent of the total number recorded. Table 8.7. gives a complete breakdown of symptoms/diagnoses for the Mendi aid posts as an indication of both the range of conditions and the composition of the categories used in other tables. It should be noted that leprosy is a particular problem in the Upper Mendi area.(6) It must also be stressed that certain diagnoses, for example 'pneumonia' may be used by aid post orderlies to cover a wide range of respiratory conditions.

Thus, most patients seen at aid posts, as illustrated by the Mendi aid post data, have the following conditions; respiratory, especially pneumonia, gastro intestinal, cutaneous, especially infected sores, trauma, and a series of other infective conditions.

Again, it cannot be emphasised to strongly that data based on treatment records can only indicate in the most general way the prevailing pattern of morbidity.

Notifiable Diseases

Another source used to indicate the pattern of morbidity is the data collected on notifiable diseases. This is collected monthly by health centres for transmission to the central government health department via the provincial health office. The purpose is to identify trends in the spread of certain diseases,

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(6) see below for discussion of leprosy in the province.

Table 8.6

Southern Highlands Province

Major symptoms/diagnoses of patients receiving treatment at aid posts. Det and Mendi health centre areas, February,1979.

	Det		Mendi	
Symptom/Diagnosis	No.	%	No.	%
Cutaneous	600	55	1743	71
Respiratory	185	17	127	5
Fever/malaria	130	12	39	2
D.D./G.I. (a)	100	9	314	13
Aches/Pains	59	5	32	1
Conditions of the eye	13	1	96	4
Conditions of the ear	14	1	38	2
Other	-	-	52	2
TOTAL	1101	100	2441	100

notes (a) Diarrhoeal disease/Gastro intestinal

(Source: aid post records held at Det Health Centre and Mendi Hospital)

with the essential aim of controlling the spread of such diseases and providing the basis for preventative, treatment and case-finding activities. It is clear, however, that the records are incomplete and the system of reporting is not entirely reliable.(7) Table 8.8 gives reported levels of leading notifiable diseases for 1977 and 1978.

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(7) personal communication, Dr.Lynne Clarke, Provincial Health Officer, Mendi.

Table 8.7

Southern Highlands Province. Symptoms/Diagnoses of patients attending Mendi aid-posts. February, 1979.

Symptoms/Diagnosis	Number
Cutaneous	
Sores	804
Septic Sores	202
Tropical Ulcer	112
Abcess	87
Scabies	156
Trauma	339
Burns	43
Respiratory	
Pneumonia	119
Influenza	8
Fever/Malaria	
Malaria	39
D.D./G.I.	
Gastro enteritis	231
Dysentery	49
Worm infestation	34
Aches/Pains	
Dental disease	32
Eye infection	96
Ear infection	38
Other	
Urinary tract infection	15
Leprosy	15
Gonorrhea	6
Other (a)	16
TOTAL	2441

notes a) recorded as 'pain', 'felt ill', etc.

(Source: aid post records Mendi Hospital)

Table 8.8.

Southern Highlands Province.

Leading notifiable diseases. Number of cases 1977 and 1978.

Disease	Number of Cases	
	1977	1978
Diarrhoea	3844	4117
Dysentery	1140	998
Gonorrhoea	180	198
Hepatitis	44	64
Influenza	35713	2073
Measles	610	312
Meningitis	44	62
Pertussis	120	198
Poliomyilitis	8	7
Syphilis	37	5
Tetanus	6	6

(Source: EPINT (Epidemiological Intelligence) Reports, Provincial Health Office, Mendi.)

Clearly the most dramatic feature of the data in Table 8.8. is the scale of the influenza epidemic in 1977; influenza is a major problem in the province, and:

> "Epidemics of whooping cough, influenza and poliomyelitis break out in the province every two years or so, generally with a reasonably high mortality in areas of poorest nutritional status". (Southern Highlands Province,Health Division, 1979, p.2.)

Leprosy

In 1978, 898 patients were on treatment for leprosy.(8)

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(8) Figure for June 30th,1978. At that time 99 per cent of all patients on treatment for leprosy were receiving Dapsone only, with the rest receiving B663. Figures from leprosy control officer, Southern Highlands Province. See below for further discussion of this disease and estimated true prevalence.

Over the province as a whole, the majority of cases were of 'borderline leprosy' and the incidence of lepromatous leprosy was very low, at 0.01 per thousand. Table 8.9 shows the uneven distribution of the disease within the province, with prevalence rates ranging from 0.73 to 11.82 between health centre areas and an overall prevalence rate of 5.13 for the province as a whole.

Table 8.9

Southern Highlands Province

Leprosy control statistics, by health centre area. July 1st,1977 to June 30th,1978.

Health Centre Area	Rates per 1,000 population	Prevalence (a)
Kopiago	2.50	3.67
Koroba	3.91	5.59
Komo	2.78	3.98
Tari	4.41	6.30
Nipa	3.60	5.15
Ialibu	0.78	1.11
Mendi	8.21	11.82
Pangia	0.51	0.73
Kagna	0.95	1.36
Lai Valley	6.13	8.77
Southern Highlands	3.59	5.13

notes a) rate per 1,000, population examined. Population examined estimated at 70% of total population.

(Source: Leprosy control statistics, Provincial Health Office,Mendi)

The incidence rate of leprosy in the province is low at 0.1 per thousand; twenty six new cases were detected in 1977 - 1978. The major problems with regard to leprosy, once cases are detected, are in the management of those cases and in particular, prevention of damage and deformity due to the consequences of neural impairment. The figures given here do not include those persons who have completed treatment and who therefore do not stand to benefit from

further medical assistance. This group does, however, require assistance with protection against physical damage, burns, and infected sores as noted above. There are no figures available for the number of persons so affected; the best estimate obtainable was "in the order of two to three thousand".(9)

Tuberculosis

> "Tuberculosis is currently not contributing much to poor health status except in the lowlands.....but if control measures are relaxed this disease could rapidly become a real problem in the province. Increasing population movement and a non-immune highland population would allow T.B. to spread very easily".
>
> (Southern Highlands Province,Health Division,1979: p.2.)

Table 8.10 shows the total number of cases of tuberculosis identified in the province in the three years to June 30th 1978, compared to the figures for Papua New Guinea as a whole.

Table 8.10

Southern Highlands Province, and Papua New Guinea. Number of cases of Tuberculosis. 1975/76, 1976/77, 1977/78.

Year	Southern Highlands	Papua New Guinea
1975/76	18	2422
1976/77	18	2690
1977/78	14	4002

notes a) year ended June 30th.

(Source: T.B. control statistics, Southern Highlands Province, Health Division.)

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(9) personal communication, leprosy control officer, Southern Highlands Province.

Malnutrition

Although a great deal more work has been done to assess the extent of malnutrition in the province than has been done with regard to other major causes of morbidity and mortality, the present situation is unclear and subject to some dispute. (Lambert, 1978; Clarke and Coghill,1979; Coghill and Clarke, 1979a; 1979b; Heywood et.al. 1979)

Malnutrition in the province takes the form of protein-energy malnutrition, undernutrition and anaemia; the groups most seriously affected are young children, particularly those in the 0-3 age group, and women, especially pregnant and lactating women.

The available data only indicates the scale of the problem among your children and is based on clinic records and nutrition surveys which use the 'weight-for-age' test of nutritional status. The

use of this approach has itself been widely criticised(Coghill and Clarke, 1979B) Beyond the fundamental inapplicability of this approach, the methods used in nutrition surveys, the representativeness of results and the nature of conclusions which may be reasonably drawn from such results have all been questioned. (Clarke and Coghill,1979)

Given very serious reservations about the evidence itself some broad indications may be taken from available data. It is clear that the nutritional status of children aged 0-5 in the province is poor; there is a generally high level of malnutrition, with significantly different levels in different parts of the province. Two major nutrition surveys have been carried out in the province; in 1975 and 1978. The overall results for the two years are given in Table 8.11.

Table 8.11

Southern Highlands Province.

Malnutrition among children under five(a) 1975 and 1978.

Weight/Age	Percent	
	1975	1978
80%	63.4	63.5
60-80%	35.9	34.9
60%	0.7	1.6
TOTAL	100.0	100.0

notes a) Children under five enrolled at Maternal Child Health Clinics at time of survey. Estimated 23 per cent of all children under five in 1975, 58 per cent, 1978.

(Source: Coghill and Clarke,1979B)

The figures indicate a severe problem of sub-clinical malnutrition, which is argued to be an important factor underlying the high child death rate of the province. (Southern Highlands Province, Health Division,1979) From these figures, there was little or no change in levels of child malnutrition between 1975 and 1978, and indeed,for the youngest age groups 0-2 years there was a slight worsening. (Coghill and Clarke,1979B)

It can be seen from Table 8.12 that there is considerable variation within the province in levels of child malnutrition.

Table 8.12

Southern Highlands Province

Malnutrition rates, children under 5. By district.1978.

District	Weight/Age (%)		
	> 80%	60-80%	>60%
Koroba	68.9	30.8	0.3
Tari	70.2	28.9	0.9
Nipa	52.9	44.6	2.3
Mendi	55.9	41.9	2.2
Kagua	68.0	29.7	2.3
Pangia	71.6	27.5	0.9
Ialibu	71.8	26.6	1.6
S.H.P.	63.5	34.9	1.6

(Source: unpublished data. Southern Highlands Province, Health Division)

As noted earlier(10), the effects of altitude on systems of subsistence agricultural production are dramatic; table 8.13 shows child malnutrition rates by altitude. It is clear that

(10) see chapter 7 , for discussion of the relationship between altitude and agricultural ecosystems.

the low altitude zone has high rates of child malnutrition, which would be predicted, given the nature of subsistence production in that zone. The lowest rates,however, are found in the high altitude zone, which is not the most inherently productive in subsistence agricultural terms, but is the least affected by cash crop development, less subject to high rates of population pressure and the zone where the most intensive subsistence agricultural techniques are used.

Table 8.13

Southern Highlands Province, Malnutrition Rates, children under 5, by altitude level - 1978.

Altitude level	Weight/Age (%)		
	<80%	60-80%	<60%
High Altitude	72.5	27.1	0.4
Upper Highlands	62.2	35.9	1.9
Highlands	63.5	35.0	1.5
Low Altitude	53.4	43.1	3.5
ALL	63.5	34.9	1.6

(Source: unpublished data. Southern Highlands Province, Health Division.)

The effect of severe malnutrition is most dramatically demonstrated in the differential mortality rates of malnourished children. Table 8.14 shows mortality rates for young children in the Tari area in 1976; as an example, children 7-30 months old, above the 80 per cent weight-for-age level, had a mortality rate of 2.5 per cent, while those under 60 per cent weight-for-age had a mortality rate of 40 per cent.

Table 8.14

Southern Highlands Province Mortality rates of young children by age and nutritional status. Tari.1976.

Age(months)	Weight for age (percent)		
	>80%	60-80%	<60%
6 or less	13.3	42.1	80
7-30	2.5	12.3	40
31-60	6.0	1.4	-
All ages	5.1	11.3	50

(Source: unpublished data, Tari Pneumonia Research Unit, Tari, Southern Highlands Province)

From data available at the Tari Pneumonia Research Unit it is possible to derive some indications of the pattern of severe malnutrition within the Tari area related to certain possibly significant factors. Table 8.15 gives an analysis by census area of the children under 5 found to be at or below the 60 per cent 'weight-for-age' level in 1976. Within the province, nutritionists and health workers in the field argue a number of possible causes for child malnutrition. Among these are absolute food shortage, inappropriate feeding practices, family disruption, child neglact, frequent infection, and poor access to health resources. The available data does not allow for serious discussion of the relative weights of these suggested factors. The Tari data, summarised in Table 8.15, suggests a link between malnutrition and poor access to health services but without more detailed information on subsistence food production and distribution, any assumption that access to health facilities is the

major determining factor must be resisted. What this data does demonstrate very clearly is the extreme complexity of the malnutrition problem, demonstrated by considerable variation within just one area of the province.

Table 8.15

Southern Highlands Province. Severely malnourished children(a) by census area and characteristics of area. Tari.1976.

Census Area	Percentage malnourished (60% Weight/ Age)	Population density (per sq m)	Geographic character	Availability of medical resources (by walking)
Henganda	0.7	52 (medium)	North Basin poorer soil	Fair. 2 hr to hospital 30 min to aid post
Piribu	0.3	375 (very high)	Central Basin good soil	Excellent 30 min to hospital
Munima	1.0	113.8 (high)	good soil	Fair.
Piujero	3.8	11.3 (low)	High altitude barren & rocky	Poor 6-8 hr to hospital 2 hr to aid post
Benarua	4.1	11 (low)	Lowland good soil	Very poor

notes a) at or below 60% Harvard Standard Weight for Age.

(Source: unpublished data. Pneumonia Research Unit, Tari, Southern Highlands Province)

Discussion - Health Status of the Southern Highlands

What is clear from the attempt here to establish the health status of the people of the Southern Highlands is that presently available data are incomplete and of doubtful validity. The overall picture, however, is relatively clear. On all major indices the Southern Highlands has lower levels of health status than the rest of Papua New Guinea.

The majority of deaths are due to infective and parasitic diseases with deaths of young children accounting for more than half of all deaths. Over the province as a whole the leading causes of death are respiratory infections, diarrhoeal diseases, perinatal diseases and birth injuries. Pig-bel is a major cause of reported death in the province. There is a second group of causes which are significant but are not leading causes of death; this includes meningitis, accidents and traumas, malaria and overt malnutrition. Other causes, such as tuberculosis, leprosy, cardiovascular disease and diseases of the central nervous system account for a small proportion of all deaths on which data is available.

The incomplete morbidity data suggests that the commonest health problems are those found throughout the Highlands provinces. (Vines,1970)

Thus, infected sores and cuts are the commonest complaints at primary health facilities; the leading disorders are respiratory infections and gastro-intestinal conditions, the latter generally associated with diarrhoeal disease and affecting children in particular.

Several diseases are more common in certain parts of the province, being related more closely to specific ecological conditions. Malaria, previously restricted to the lowlands areas in the south of the province has begun to spread more widely throughout the province. This disease now has a substantial incidence in many parts of the province hitherto unaffected. The spread of the disease has been related to social change in the province and in particular to economic development.(11) Increased labour mobility, especially the movement of labourers to and from coastal plantation employment has resulted in more widespread transmission of both the disease and the vector. Within the province, infrastructural changes related to intensive cash crop production have resulted in the development of the vector in certain areas; in particular the establishment of plantations and estates, with irrigation channels and substantial new areas of suitable habitat for the vector.(12)

There can be no doubt as to the increasing importance of malaria in the mortality and morbidity of the province and there are strong grounds for believing that this disease will become more serious as

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(11) Personal communications. Provincial Health Officer and Malaria Control Officer, Southern Highlands Province.

(12) It has been noted that in the Western Highlands malaria has increased around coffee plantations to epidemic proportions. Personal communication, Provincial Health Officer, Western Highlands Province.

economic development gathers pace and both intra-province and inter-province transportation improves. The movement of both people and goods will spread the disease.

Leprosy is found, at present, in particular parts of the province, especially the upper altitude areas. Most patients with leprosy used to be treated in special leprosy hospitals, where they often stayed for many years. (Clements and Ramsay, 1973) It is now the policy to treat the patients in the community as far as possible. It is hoped that this will encourage community acceptance of the patients and that the community will not reject them as has happened in the past when leprosy patients returned to their communities after many years away. (Riley,1975; Vincin and Kerr,1973) The disease still evokes a powerful negative response, both in patients and other members of the community and in many areas social attitudes, beliefs and practices militate against a successful community based approach. (Kerr,1973)

The objective of the current approach to leprosy is to reduce the disease to a level at which it is no longer an important health problem; the methods used are case detection, investigation of contacts, treatment, follow-up of patients and health education, with priority given to patients with infectious leprosy to prevent the spread of the disease. Since 1976, the symptom adopted to meet these objectives is one in which leprosy control is carried out by general health workers at all levels and not by a specialist team. (Papua New Guinea, Department of Public Health,1976A) The aim is that all health workers should be taught to suspect leprosy, how to diagnose it and the steps to take

in management of the disease. There may be some grounds for suspicion that these changes in administration have reduced the effectiveness of case-finding and consequently resulted in severe under-reporting of the disease.

As the National Health Plan notes, the decline in the number of new cases of leprosy located nationally in the period 1969 to 1973"reflects probably decreased case finding rather than evidence of control over the disease."(Papua New Guinea, Department of Public Health, 1974 : p.215) The National Health Plan estimated on the basis of sample surveys, that the national leprosy prevalence rate was 9.1 per 1,000 persons in 1974; the estimate for the Southern Highlands was 10.6 per 1,000 persons. Applying this rate to the current population would give an estimated number of leprosy cases of 2,624.(13) The accuracy of the National Health Plan estimates may be questioned, but it is likely that current registered cases in the Southern Highlands do not reflect more than half the number of persons suffering from the disease.

The administration of tuberculosis control, similarly changed in 1976(Papua New Guinea Department of Public Health,1976B)does not seem to have resulted in the same problems as in the case of leprosy control. There are regular tuberculosis case-finding patrols within the province, especially in areas of known high rates of prevalence and screening programmes at schools and other institutions where spread of the disease is most likely. There does not appear to be any evidence to undermine the belief that

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(13) The number registered in 1978 was 898.

tuberculosis is not at present a major problem in the province. There is, however, a good deal of tuberculosis in other parts of Papua New Guinea and increasing movement between provinces increases the likelihood of the disease spreading. There is little immunity to the disease in the Southern Highlands and the risks are consequently great; the maintenance of currently low levels of tuberculosis within the province will depend on effective vaccination programmes and early diagnosis and treatment of infective cases.

Veneral disease is undoubtedly increasing in the province, even as measured in available statistics. As with leprosy, however, there are many reasons to believe that the number of recorded cases seriously understates the scale of the problem. Given the nature of venereal disease and the difficulties of administering an effective case-detection and contact tracing system, current figures largely reflect voluntary presentation for treatment. The number of recorded cases therefore reflects the level of community knowledge regarding venereal disease, the degree of fear and shame preventing those affected seeking treatment, the diagnostic abilities of health workers, the effectiveness of contact-tracing and, as noted earlier,the fundamental question of access to health facilities. In the Eastern Highlands Province, with a similar pattern of social conditions and health resources, it was estimated that in 1977 "the number of patients seen multiplied by four would give a truer picture of the actual problem". (Eastern Highlands Province, 1977: p.43)

There is little reason to believe that the situation in the Southern Highlands Province is significantly different, albeit that the levels of venereal disease are currently lower than in

the Eastern Highlands. As discussed earlier in relation to malaria, the spread of venereal diseases is quite clearly linked to economic and social change. Greater mobility of the population, in particular, is undoubtedly contributing to a rise in the level of venereal diseases. Given the particular nature of these diseases, however, effective control programmes, including health education programmes, are exceedingly difficult. (Hart,1974)

Pig-bel(enteritis necrotians) is a leading cause of hospital deaths among older children and undoubtedly causes a considerably larger number of deaths than those reported in the available statistics. The disease is peculiar to the Highlands of Papua New Guinea and was first recognised as a clinical condition among Highlands hospital admissions. (Murrell and Roth, 1963; Murrell,1966)

The disease usually develops as a gastro enteritis among people who have taken part in a large-scale pig feast. Many cases require surgical intervention due to gangrene of the bowel and intestine. It was previously believed that the cause of the disease was infection from partially-cooked pig meat(Shepherd,1973), and work has progressed to produce a vaccine based on the identified infective organism. This explanation of the causation has more recently been questioned however, as it has been found that cases have resulted from ingestion of perfectly cooked pork, and even from uninfected tinned fish.(14) It seems possible that the primary cause of the disease lies in the ingestion of significant quantities of protein by people with a generally very low protein intake and

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(14) Personal communication. Dr.John Millar, Medical Superintendent Mendi Hospital.

not in infective nature of the food itself. It is a serious problem in the province in that severe cases require surgery which is only available at Mendi and Tari; early diagnosis is often difficult as the symptoms are, in the early stages, similar to the many other intestinal diseases; the causation is at present only partly understood. Relative to the major causes of mortality and morbidity however, it is not among the most serious disease problems.

As noted earlier, diarrhoeal disease is a major problem in the province; the available provincial data do not enable the contribution of worm infestation to be adequately assessed. There can be no doubt, however, that this is a serious problem, particularly among children. Vines(1970) found that there was a 78 per cent prevalence of hookworm infestation in the Highland region as a whole. Prevalence decreased markedly in communities living above 6,000 feet altitude. There is some evidence that hookworm infestation causes anaemia in the Southern Highlands, but the link has not yet been adequately demonstrated. (Zigas,1973)

Again, according to Vines(1970), the roundworm(Ascaris), is more prevalent in the Highlands than in other parts of Papua New Guinea, with a prevalence rate for infestation of 50-60 per cent.

There can be no doubt that a great deal of morbidity is attributable to roundworm infestation but the amount is uncertain. What is clearly significant, given the patterns of morbidity noted earlier, is that roundowrm infestation has been shown to cause not just diarrhoeal disease but respiratory disease also. (Ewers and Jeffrey, 1971) It is not known to what extent roundworm is responsible for

bronchitis or pneumonia in the Highlands and no evidence is available for the Southern Highlands.

What is clearly important is that roundworm is common in pigs in the Highlands and it has been established elsewhere that roundworm eggs from pigs will hatch in man and cause the usual symptom when the larvae migrate through the lungs. As Ewers and Jeffrey point out:

> "In villages in Niugini where pigs live in close contact with the people, it is almost certain that the larvae from pig Ascaris frequently migrate through the lungs of man. .....Work should be done to find out whether cross infection can occur and how important it is. Pneumonia is responsible for about 10% of all hospital admissions in Niugini and, the part Ascaris larvae, from man and pigs,play in opening the way for secondary infection due to bacteria should be investigated.
>
> (Ewers and Jeffrey, 1971: p. 145)

Thus, although the exact extent of worm infestations is unknown, and the precise level of morbidity attributable to the two major worm infestations, hookworm and roundworm, is similarly not known, they are clearly of major importance. As suggested above, it may well be the case that significant respiratory morbidity may be attributable to roundworm infestation, possibly linked with the pig population. Both these parasites are transmitted by faeces, hookworm by walking on infested faeces and roundworm by ingestion.

As noted earlier, malnutrition is a serious problem in the province, contributing significantly to morbidity and mortality, especially of young children. Deaths attributable to clinical

malnutrition are relatively infrequent in the province but it may be seen as a major factor in the severity, prolongation, and possibly fatal effects of the majority of common infective diseases.

In summary, therefore, the causal processes involved in the important health problems of the Southern Highlands fall into four groups: nutrition, especially that of young children; sanitation and hygiene, particularly with regard to the cycle of transmission of faecally-transmitted diseases; the cycles of transmission of other communicable diseases; and the problems of childbirth. The vast majority of diseases are due to infections and are thus susceptible to environmental improvement and preventable through education and immunization. This pattern of disease is clearly not stable, and current and proposed socio-economic change in the province will, it has been argued, affect particularly the incidence of malaria, venereal disease, tuberculosis and malnutrition. As noted by the Provincial Health Division in 1979:

> "Economic development in the S.H.P. is necessarily a high priority. There is genuine concern lest improved income earning opportunities bring with them social disruption and deterioration in health status, as has happened in other areas. It is feared that food gardening may be neglected and that nutrition problems will worsen. Additionally, it is noted that most tea, coffee and cardomon development sites are within areas of the province already known to be malarious".
>
> (Southern Highlands Division, 1979: p.2)

Despite the very considerable gaps in knowledge of the health status of the province, and the paucity of available data, the fundamental nature of the health problem is well established.

The Provincial Health Officer argued in 1977, that:

> "The problem of health in this province is not one of medical technology. We know enough to improve most of the common health problems here. The problem is to make that medical technology acceptable to the people that we serve. We do not wish to denigrate the achievements of the health service so far, which have been shown to be very considerable, but rather to say that if the essential problems we have identified limits our further improvement, and success lies outside the boundaries of medical technology, then the solutions to these problems will also be found by working in new areas and most effectively by people with different kinds of backgrounds and skills from an orthodox medical approach".
>
> (Lewis, 1977)

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CHAPTER 9

HEALTH SERVICES IN THE SOUTHERN HIGHLANDS PROVINCE

Organisation and Administration

The province is divided into fourteen Health Centre Areas, each having a health centre, or in the case of Mendi, a hospital, from which the Health Extension Officer(H.E.O.) supervises health work in the area. Health centres are staffed usually with an H.E.O. aid post orderlies, nursing staff and labourers, and provide inpatient, outpatient, obstetric and Maternal Child Health (M.C.H.) care in most cases.

Within each Health Centre area are Aidposts, staffed by Aidpost Orderlies(A.P.O.s), and providing standard outpatient care; and Health sub-centres, staffed by trained nurses and nurse aides and providing obstetric and MCH care together with limited inpatient and outpatient care.(1) Referral of difficult cases from aidposts and sub-centres is to health centres; from health centres cases may be referred to the provincial hospital in Mendi or to the Tari Major Health Centre.

At the Provincial Health Office in Mendi there is a staff of supervisors responsible for the provincial administration of the National Health Improvement and Disease Control programmes.

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(1) There were 136 aidposts in the province in April,1978 and 15 health sub-centres.

Within the province, health services are provided by both the government and churches. In 1978, eight different churches were active to some degree in the provision of health services in the province.(2) The provincial hospital and eleven of the health centres are government run; two recently established health centres are run by church agencies. Until 1978, all fifteen health subcentres were church centres; five new government subcentres are currently being established and one church sub-centre is to be closed. Virtually all aid-posts in the province are government run; only 12 out of 136 were non-government in 1978.(3) As in Papua New Guinea generally, the churches receive financial assistance from central government for their health services by way of establishment grants, transport subsidies and salaries for trained staff. Table 9.1. summarises the pattern of health service facilities in the province and underlines the dominance of government-provided services at all levels except that of health sub-centres and MCH clinics. The MCH clinics are not permanently established centres but are run, generally one day each month, by mobile teams from health centres and health subcentres.

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(2) There are at least seventeen different churches represented in the province, a number of them quite recently established by foreign missions.

(3) In this the province is somewhat different from a number of other provinces in Papua New Guinea. See Chapter 6 for discussion of the national situation.

Table 9.1

Southern Highlands Province
Government and Church health facilities by type. April,1978.

Facility	Government	Church	Total
Provincial Health Office	1	-	1
Hospital	1	-	1
Health Centres	11	2	13
Sub-centres	5	14	19
Aidposts	122	14	136
MCH clinics (a)	109	212	321

notes: a) number of locations at which clinics held by health centre and sub-centre staff.

(Source: Southern Highlands Province, Provincial Health Office records)

Prior to 1978, the Provincial Health Officer and Provincial Health Extension Officer were officers of the national health department and responsible directly to national headquarters for health services within the province. In July 1978, health responsibilities were given to provinces under the decentralisation programme; the Southern Highlands Province assumed these responsibilities in August 1978 when the province gained provincial government status. Under the new arrangements, the province has responsibility for virtually all health services within its area.(4)

(4) See chapter 5 for discussion of the decentralisation of responsibility for health.

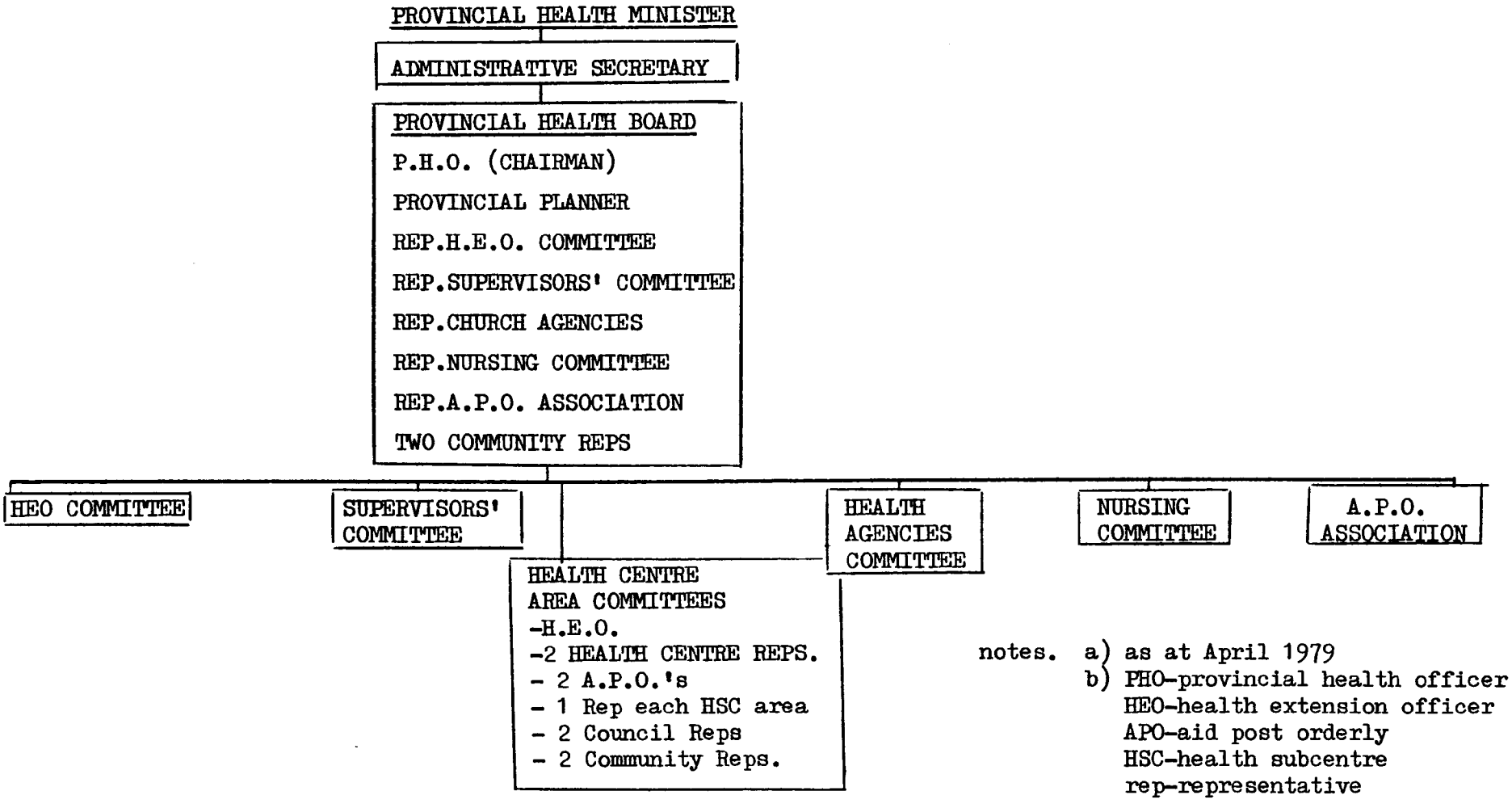
Partly as a consequence of decentralisation but also in response to the ineffectiveness of the existing structures, the administration of health in the province was reorganised in 1978. The new structure is shown in Figure 9.1; the intention of this structure was expressed as follows:

> ".....to provide a coordinated 'Health Service' in Southern Highlands Province. (Note: This proposal is NOT basically aimed at coordinating Church and Government Health Services, but to coordinate all health activities, National and Provincial, rural and urban, "east of the gap and west of the gap", semi-skilled and highly trained as well as Church and Government. It is more professional than political at the moment".
>
> (Southern Highlands Province,Department of Health,1978: p.3, emphasis in original)

It is interesting to note here the references to several long-standing problems within the province. First, the sensitivity of church groups to 'interference' in or possible 'take-over' of their health work; second, the politically-charged issue of disparity in provision between the western and eastern areas of the province, roughly divided by the Tari Gap; third, the conflicts between different groups of health workers, essentially drawn on lines defined by reference to levels of training remuneration and status.

The Provincial Health Board has representation of all categories of health workers in the province together with church and community representation. Appointment to the board is made by the provincial Minister for Health from nominations by the

Figure 9.1 Southern Highlands Province, Health Division. Administrative Structure.



notes. a) as at April 1979
b) PHO-provincial health officer
HEO-health extension officer
APO-aid post orderly
HSC-health subcentre
rep-representative

particular group concerned, except in the case of 'ex-officio' members. The functions of the board are:

"1. To advise the Provincial Portfolio Member for Health on Health matters(Provincial and National Delegated functions).

2. To prepare the Provincial Health and Annual Health Budget plans for the approval of the Provincial Portfolio member for Health.

3. To supervise the implementation of the approved plan.

4.(a)To advise the Administrative Secretary, the Health Committees and the Health agencies on matters affecting the efficiency of health institutions or the system and the welfare of health staff.

4.(b)To supervise the implementation of the National Health Improvement and Disease Control Programmes and advise the Health Department on matters related to National Delegated Health Functions.

5. To allocate an establishment of Health staff to Health institutions in the Province.

6. To allocate Aid Post Orderlies to all Health Centre areas, for appointment by the Health Centre Area Committee to an Aid Post.

7.(a)To ratify the appointment of Nursing staff to Government Health Institutions.

7.(b)To appoint other trained staff(excluding A.P.O.'s and Nursing staff) to Government Health Institutions.

7.(c)To ratify appointments made by Church agencies to their Health Institutions.

8. To allocate quotas for students to Health Training Institutions.

9. To set provincial criteria for selection of students for Nurse Aid Training and Aid Post Orderly Training and to make recommendations regarding criteria for selection of Trainee nurses to the Training Division of the Health Department.

10. To make recommendations to the Provincial Health Minister regarding collection of fees for Health Services.

11. To consider staff disciplinary charges and make recommendations to the Administrative Secretary or the church Agency as appropriate.

12. To check the routine development and administration of the system.

13. To approve membership and functions of Health Committee within the Province."

(Southern Highlands Province,Department of Health, 1978:p.4.)

It can be seen that the board has a key function in preparing and implementing provincial level health plans; prior to decentralisation there was little forward planning and the new structure is designed to allow the formulation of a coherent and coordinated provincial health strategy. In addition to its policy-making function, the board also has a number of regulatory powers which are intended to produce a more rational distribution of health facilities and health programmes which are more closely in line with the health needs of the province. Several of these are worthy of emphasis: first,that the health board now sets the staff establishments for all health facilities in the province; second, that Church health staff appointments must be ratified by the board; and third, that the board allocates aid post orderlies to health centre areas, but does not appoint to specific aid posts. The last is an example of the measures implemented to attempt to bring meaningful internal decentralisation to health services in the province; local health centre area committees now have the responsibility of allocating staff to specific aid posts, and also for nominating particular persons for training as aid post orderlies.

It is not possible at this stage to judge how successful the provincial health board will be in formulating and implementing a genuine provincial health strategy with meaningful participation. The board is only intended to meet four times each year and a

number of its functions are delegated to a provincial health committee which is dominated by professional health staff. In the new structure a number of other committees have been formed, essentially as advisory to the health board but also having delegated powers. These are the Health Extension Officers, Health Supervisors, Provincial Hospital Management and Health Centre Area Committees. Each of these is responsible for planning, administration and policy-making within particular sectors of the provincial health service and are, with the exception of the Health Centre Area committees, essentially groups of health staff appointed 'ex-officio'. The Nursing Committee attempts to coordinate the activities of government and church services by the inclusion of church representatives; the majority of church health work in the province is in maternal and child health nursing and a large proportion of the nursing services within the province is provided by the churches.

Perhaps the most important committees established by the new system, at least potentially, are the Health Centre Area committees. It is argued within the province that:

> "As far as possible, decisions regarding health services, health improvement programmes and health planning should be made within the areas where such services are supplied. Thus the Health Centre Area Committee is to be regarded as a most important policy making body".
>
> (Southern Highlands Province, Department of Health, 1978: p.5.)

It is at this level that community participation is greatest; as can be seen from Figure 9.1 above, there are two local government

representatives and two 'community representatives' on each committee. The intention behind the establishment of these committees is to provide for local implementation of the provincial health plan "in the manner most appropriate for the area". (Southern Highlands Province,Department of Health,1978: p.6.) Again, it is too early to comment on the operation of these committees. Only five, of fourteen, had met by April, 1979.(5) For these, minutes of meetings suggest that at this early stage at least, two features predominate. One is that meetings are dominated by the health staff, and the Health Extension officer in particular; the other is a recurrent concern with the establishment of local level regulations concerning environmental health. These are commonly sought in the form of local bye-laws and many proposals involve heavy penalties for offenders.(6) Until such time as these committees are well established however, it would be wrong to form any firm conclusions as to their effectiveness either in administrative terms or as means of genuine participation in health services development at the local level.

In summary, the system of administration is one which attempts, as far as is possible given the nature of the province, to achieve maximum internal decentralisation and participation together with

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(5) According to records at the Provincial Health Office.Mendi.

(6) The minutes of the Nipa Health Centre Area committee for example, contain a large number of proposals for draconian bye-laws intended to ensure hygiene and environmental sanitation standards.

the formulation of a coherent provincial health strategy. In doing so, it reflects, at the provincial level, the pattern of administrative development at the national level. At present the basis has been laid for an administrative system which is responsive to local needs and demands; until that system is developed and used the provincial health services will continue to be dominated by professional medical staff and in particular by the staff at the centre.

Finance

Government health expenditure for the Southern Highlands was K680,995 in 1978. The per capita expenditure on health in the province was K2.75; the province ranks last nationally in per capita expenditure for health.

During the period of the National Health Plan, from 1973/74 to 1977/78, the relative position of the province has worsened in comparison with the country as a whole. In the first year of the plan national per capita expenditure on health was k5.82; that for the Southern Highlands was K2.85. In the last year of the plan period the national figure was K14 and the provincial figure k2.75. (MacPherson.1978) Table 9.2. gives a functional analysis of health expenditure for 1978; almost the whole of the 'health care,urban' allocation was for Mendi hospital. About half the 'health care, rural' allocation was for aid posts.

Table 9.2

Southern Highlands Province. Estimated Health Expenditure, by function. 1978(a)

Function	Amount(kina)	Percentage
Policy and Administration	55769	8.2
Health Care Urban	273629	40.2
Health Care Rural	273728	40.2
Health Care Other(b)	52425	7.7
Health Improvement	25444	3.7
Total	680995	100.0

notes; a) year ended December 31st,1978
b) maternal child health, family planning and pharmaceutical services.

(Source: Unpublished data Provincial Health Office,Mendi. For public service salaries component, from unpublished data Department of Health, Port Moresby)

The pattern of expenditure within the province follows that of the country as a whole; a very small proportion of the total in 1978 was spent on health improvement compared with health care, and the hospital took a very large share of the total budget. With the introduction, nationally, of the National Public Expenditure Plan(NPEP), base health expenditure in the province is set at 1977 levels.(7) Any additional expenditure

(7) See chapter 5 for discussion of national health expenditure.

over those levels will be subject to the NPEP planning process. The intention is to ensure by allocation of funds, a gradual reduction in the presently gross inter-provincial inequalities, and the present imbalance between urban and rural health expenditure. Under the 'rural health programme' allocation of the NPEP, the Southern Highlands has been allocated K34,600 for each of the four years from 1979 to 1982. In addition there is approximately K300,000 of UNICEF aid for 1979 and 1980 to be spent in the five highlands provinces. There is at present no means of ascertaining the proportion of this amount which will be available to the Southern Highlands province. Similarly, there is no indication at present as to what proportion of other NPEP health projects will be spent in the province. In relation to the k34,000 per annum projected expenditure on the rural health programme, no details of the breakdown of this amount within the province are available from the NPEP. It is stated that:

> "Total funds have been allocated between provinces on basis of health indicators,(sic).....Technical assistance will be sought to coordinate the programme and to recommend on the best ways to deliver rural health services and train rural health workers .....Future year's costs will be reviewed and a four year programme of expenditure for all provinces worked out during 1979".
>
> (Papua New Guinea, National Planning Office,1978:p.143.)

Table 9.3 shows the major health projects in the 1979-1982 NPEP, which have application to the Southern Highlands. It should be noted that all projects except the Mendi Hospital blood bank are national programmes. The proposed health expenditures falling under to World Bank financed Southern

Highlands Project are discussed below where provincial health plans are considered. Table 9.3. represents national health activities.

Table 9.3

Southern Highlands Province. 1979-1982 NPEP projects affecting the province.

Project	Expenditure(K'000)				Comment
	1979	1980	1981	1982	
Rural Health	34.6	34.6	34.6	34.6	S.H.P.Component
Family Planning(a)	312.1	263.0	267.0	-	Mainly headquarters
Disease Control(b)	160.0	180.6	-	-	Improving rural facilities
Nutrition(c)	98.6	121.3	120.8	-	Provincial nutritionist.
Rural Water(d)	57.1	100.0	-	-	Four highlands provinces
Mendi Blood Bank	18.0	5.0	0.5	0.5	-

notes
a) provincial expenditure minimal, limited to educational materials for MCH clinics

b) in light of World Bank funded projects in province, likely to be minimal

c) in SHP salary of nutritionist only, currently funded by Save the Children Fund.

d) water supply to health facilities.

(Source: Papua New Guinea, National Planning Office, 1978:pp.143-147)

It is, as noted earlier, extremely difficult to estimate the likely expenditure on health in the province from 1979 onwards. Essentially, the 1977 budget will hold as the basis for the future,

additional expenditure coming through the NPEP procedures and the World Bank financed Southern Highlands Project. The 1979 NPEP project allocations in general gave substantial allocations for hospital capital expenditure. As was noted, the current intention is to plan health expenditure in the country as a whole on the basis of:

> "general policy guidelines directing attention to the rural areas and prevention rather than treatment, will be translated into specific plans by the National Health Programming Committee which is at present formulating the next Country Health Plan to be effective from 1979".
>
> (Papua New Guinea, National Planning Office,1978:p.75)

By mid-1979 the new Health Plan had not been produced; until it is any detailed discussion of future health expenditure is impossible. What can be said for the Southern Highlands province is that in the period up to 1979 the amount available for health was extremely low, both relatively and absolutely. Over the period of the National Health Plan expenditure had only barely kept pace with population growth. Any significant changes are now dependent on the NPEP allocation system and the World Bank financed Southern Highlands Project.

Facilities and Staff

In April, 1979, the province had one hospital, in Mendi, 13 health centres, 19 subcentres and 152 aidposts. In terms of the level of facilities available, the Tari Major Health Centre must be considered as a 'rural hospital'. The distribution of health facilities within the province is shown on

Figure 9.2. For all facilities but aidposts, this may be taken as accurate; for aidposts both the locations and names of those locations may be far from accurate. Locations are generally as shown but in some cases aidposts may be closed, in others the aidpost may have been physically re-located without the knowledge of the Provincial Health Office.(8)

Mendi hospital is the ultimate referral centre for patients within the province, save for a small number occasionally referred to Mt.Hagen in the Western Highlands or to the national referral hospital in Port Moresby. The hospital has 169 beds and a high bed occupancy rate; types of bed and occupancy are shown in table 9.4. In 1976, when these data were collected, Mendi had the second highest bed occupancy rate of all hospitals in Papua New Guinea. Only Mt.Hagen at 86.4 per cent, was higher. (Duega. 1977). In 1977 the Southern Highlands ranked last of all provinces in terms of population per provincial bed, at 1390; the figure for the country as a whole was 691. As can be seen in table 9.5, the total number of hospital and health centre beds in the province was 801 in 1978, giving beds/population ratio of 1:312; in 1974 the ratio was 1:310 which placed the Southern Highlands seventeenth of nineteen provinces. (Papua New Guinea,Department of Public Health.1974) It is clear from the data given in Table 9.5. that bed occupancy rates vary widely between health centres.

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(8) See Appendix for further discussion of this.

Fig. 9·2 SOUTHERN HIGHLANDS -

HEALTH FACILITIES - 1979

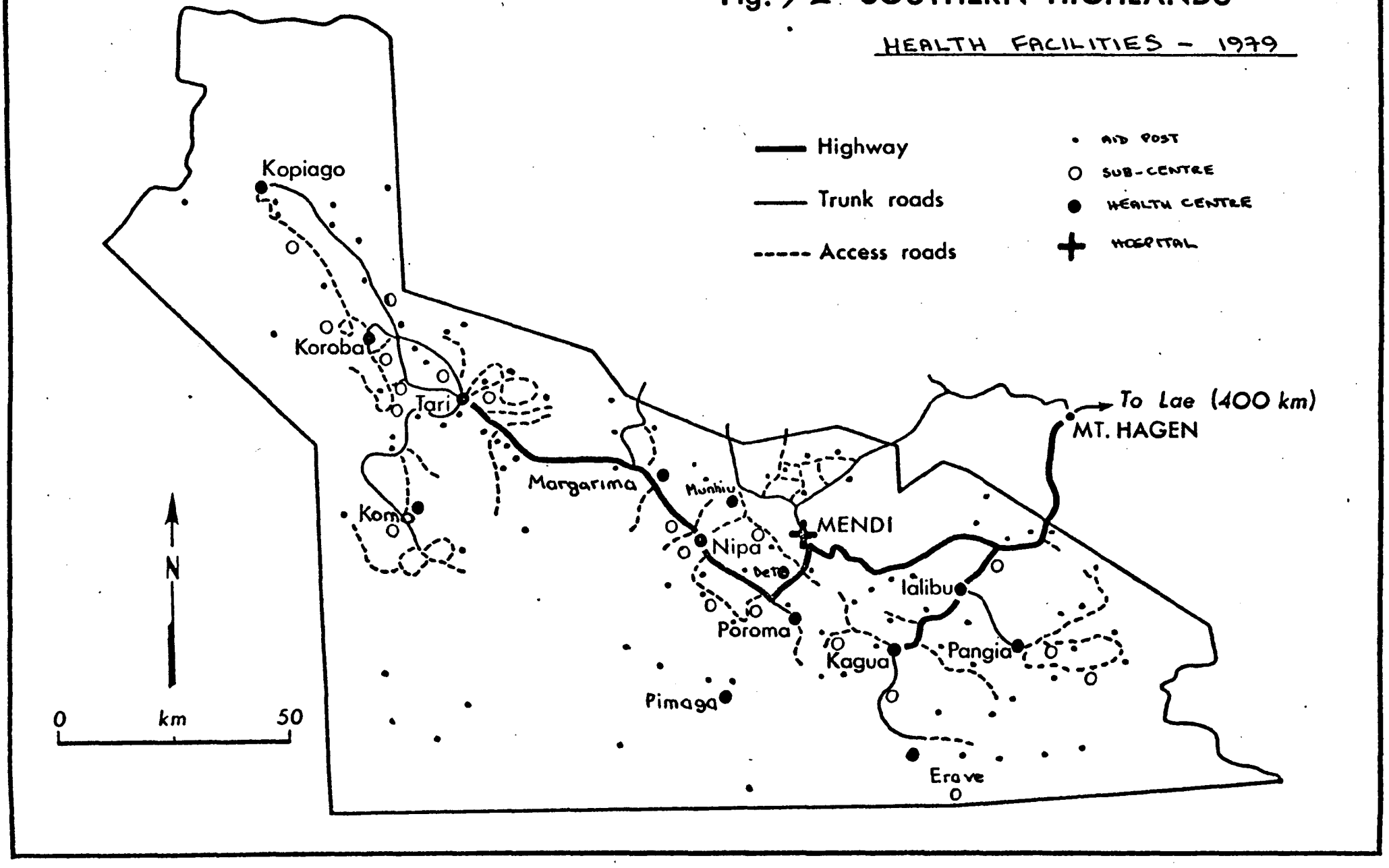

Table 9.4

Southern Highlands Province, Mendi Hospital. Beds by Type, and Bed Occupancy Rate, 1976.

Type of Bed	Number	Bed Occupancy (%)
Medical	64	-
Surgical(1)	32	-
Paediatric	32	-
Obstetric(2)	21	-
Full Nursing	20	-
Total	169	85.2%

notes 1) includes gynaecological beds
2) includes labour ward beds

(Source: Duega. 1977. p.109)

It should be noted, in interpreting the level of facilities available at health centres from the data in table 9.5., that most operations performed at health centres are of a relatively minor nature. More serious operations are most often carried out by doctors from Mendi, or Tari, during regular visits to health centres. The large number of operations at Ialibu is a consequence of the presence of a doctor at Ialibu health centre for a substantial period during 1977/78. He was withdrawn early in 1978 and considerable local pressure was being exerted during the latter part of 1978 and the early part of 1979 for his replacement.(9) The lowest levels of bed

(9) Prior to 1978 the Minister of Health in the national government was from the Ialibu area.

Table 9.5.

Southern Highlands Province. Estimated Hospital and Health Centre Inpatient Statistics. 1977/78.

Hospital/ Health Centre	Admissions (year)	Beds	Daily Inpatients (average)	Bed Occupancy (%)	Duration of stay (days)	Deliveries (year)	Operations (year)
Kopiago	1151	44	21	47.7	6.6	25	11
Koroba	1388	93	30	32.3	7.9	148	27
Tari	3183	100	84	84.0	10.4	79	182
Komo	735	30	20	66.7	10.8	-	7
Magarima	1860	44	45	102.3	9.0	66	NA
Nipa	1017	58	21	36.2	7.2	144	NA
Pimaga	485	20	13	65.0	10.3	2	19
Det	2360	72	52	72.2	8.3	130	NA
Mendi	4582	169	137	81.1	10.9	327	503
Kagua	1200	62	31	50.0	9.4	24	NA
Erave	373	28	8	28.6	8.6	41	2
Pangia	875	35	25	71.4	9.7	11	39
Lalibu	1599	46	30	65.2	6.8	25	200
Total	20808	801	517	64.5	8.9	1022	990

notes 1) in most cases figures are for year ended 30th June,1978. In others yearly totals have been estimated from figures for shorter time periods within that year.

(Source: Provincial Health Office records, Mendi)

occupancy may be explained primarily by reference to access to higher level facilities. Koroba, for example, is one hour's

drive from Tari Major Health Centre; it also has a very large number of beds, most of which are never used and indeed could not be used without major renovation. Nipa has relatively easy access to Mendi, and in addition was being physically relocated during 1977/78, from the existing substantial premises to a more restricted facility close by. Erave, in the southermost part of the province, is in an area of relatively very low population density and shifting settlement.(10)

Table 9.6. shows the changing level of health facilities available within the province during the period of the National Health Plan. The Southern Highlands ranked eleventh nationally in 1973 with regard to health centre provision, and twelfth in 1975. In terms of aid post provision the province ranked seventeenth in both 1973 and 1975. (MacPherson,1978) Data was not available to enable rankings to be made for 1977 or 1978.

There has been some improvement in health centre provision in the period 1973-1978, particularly in aid post coverage ; there are however significant variations within the province. These are indicated by Table 9.7 which gives health centre populations and aid post/population ratios by health centre area for 1978.

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(10) Additional factors affecting utilisation of health facilities are discussed below.

Table 9.6

Southern Highlands Province Health Facility/Population ratios 1973,1975,1977 and 1978.

Type of Facility	Facility/Population ratio 1973	1975	1977	1978
Health Centres	20,000	18,500	19,813	17,684
Aid Posts	2,350	2,394	1,684	1,628

(Source: for 1973 and 1975, MacPherson,1978, Appendix 1:4; for 1977 and 1978, Provincial Health Office Records, Mendi.)

Table 9.7

Southern Highlands Province Distribution of Health Centres and Aid Posts. 1978.

Health Centre	Population	No. of Aidposts	Ratio Aidpost/Pop.
Mendi	29752	18	1:1653
Kopiago	10831	12	1:903
Koroba	23903	16	1:1494
Tari	36031	21	1:1715
Komo	9690	9	1:1077
Margarima	12785	6	1:2131
Nipa	19847	9	1:2205
Pimaga	5568	10	1:557
Det	8846	4	1:2212
Munihu	9236	4	1:2309
Kagua	26883	15	1:1792
Erave	7303	5	1:1461
Pangia	21391	8	1:2674
Ialibu	25510	15	1:1700
Total	247576	152	1:1628

notes a) includes 1 proposed health centre(Munihu) and 16 proposed aid posts. These were due to open by the beginning of 1979.

It is clear that the health centres vary enormously in the size of populations they serve, and consequently, in the complexity of their organisation and administration. This is

illustrated by the number of aid posts supervised by the various health centres.

For the basic facilities providing primary health care - the aid posts, it is clear that although the province has achieved a major improvement in the overall level of provision, considerable local variations still exist. At the level of 1628 persons to each aid post in the province, the Southern Highlands is still above the National Health plan target of 1500 persons per aid post. Furthermore, the province had not, between 1973 and 1975, improved its ranking among all provinces. Gross provincial ratios are not however very useful as indicators of the real availability of aid post facilities within the province. The health centre area averages go a little further towards producing a meaningful picture, but are still severely limited. It is apparent that in many areas, between two and three thousand people are dependent on a single aid post. It is at this point that the limited usefulness of measures of available facilities becomes clear; facility/population ratios may indicate gross disparities between regions, provinces or even districts within provinces, but without detailed knowledge of local population densities, physical access and utilisation they are a very poor guide to facility availability at the community level.

For aid posts, some information is available on physical access which adds a useful dimension to the discussion of the availability of facilities; this is shown in Table 9.8, for 1973.

Table 9.8

Southern Highlands Province Travelling time to aidposts (time by walking) 1973.

Travelling time	Percentage of Population		Position of S.H.P among the 19 districts
	Papua New Guinea	S.H.P.	
less than 1 hour	56.4	46.5	18
1 to 2 hours	26.0	32.0	18
2 to 4 hours	14.0	17.0	19
more than 4 hours	3.6	4.5	19
TOTAL	100.0	100.0	

(Source: Lewis, 1974: Table 2)

Unfortunately, information for 1978 is not available on the same basis as that for 1973; table 9.9 gives some indication of the situation in 1978 based on a village survey conducted in late 1978. These figures must be treated with caution, not only because they are based on only 22 of 47 census districts but because they rely on administrators' assessments of travelling time, which have previously been shown to be unrealistic in many cases.(11)

Although comparisons between 1973 and 1978 across the whole range of travelling times are not possible it is clear that some improvement has taken place. The proportion of the population living within one hour's walking distance of an aid post, the

(11) Personal communication, Gary Simpson, National Planning Office.

Table 9.9

Southern Highlands Province
Travelling time to aidposts(time by walking) 1978

Travelling time	Percentage of Population
'same village'	18
less than 1 hour	40
1 to 2 hours	31
2 to 3 hours	9
more than 3 hours	2
Total	100

notes: A) based on 22 of 47 districts

(Source: Village Survey forms, Southern Highlands Development Authority, Mendi. April,1979)

declared national target travelling time, has increased from 46.5 per cent to 58 per cent. Despite rapid population growth, an increase in the number of aid posts, together with resiting for optimum accessibility, has resulted in improvement of aid post facilities in the province. However, as noted earlier, the province remains low in provision relative to the rest of the country, and in many particular communities within the province, access remains poor.(12)

Table 9.10 details the relationship between health facilities and population in the province by health centre area. The Maternal Child Health populations are those which are the responsibility of health centres and subcentres as indicated.

(12) For further discussion of this see Chapter 11.

Table 9.10

Southern Highlands Province. Health facilities and population by health centre area.1978.

Health Centre	Council	Population	Subcentres	M.C.H. Popn.[a]	Aidposts
Lake Kopiage	Lake Kopiage	10831	Kelabo	3552 3314	12
Koroba	Koroba	23903			16
			Pori	7260	
			Gwala	7868	
			Mogorofugwa	9428	
			Pureni	3630	
Tari	Tari	36031			21
			Waledecannabu	15585	
			Hoiobia	14842	
			Taniwalete	7493	
			(Wabia)		
			(Paijaka)		
Komo	Komo	9690	Mananda	6689	9
			Mt Bosavi	3370	
Margarima	Margarima	12785		13771	6
Nipa	Nipa	19847		10847	9

Table 9.10
(cont)

Health Centre	Council	Population	Subcentres	M.C.H. Popn	Aidposts
Pimaga	Lake Kutubu	5568		5568	10
Det	Poroma	8846		21120	4
			Embi	5924	
Mendi(Hosp.)	Mendi	29752		18488	18
Munhiu	Lai Valley	9236		9236	4
Kagua	Kagua	26883		26883	15
			(Kuare)		
			(Sumbura)		
			(Sumi)		
Erave	Erave	7303		4526	5
			Samberigi	2632	
Pangia	Pangia	21392		4946	8
			Wiliame	9017	
			Tagaru	5972	
Ialibu	Ialibu	25510		25510	15
Total		247576		247576	152

notes: (a) Maternal Child Health (b) bracketed subcentres due to open during 1979.

(Source: compiled from Provincial Health Office records, Mendi)

Staff

In December 1978, there were seven physicians, including one dentist, eighteen HEOs, one hundred nurses, one hundred and eight nurse aides and one hundred and eighty six APOs in the Southern Highlands province. Table 9.11 gives details of the distribution of these staff by facility. It should be noted that one of the physicians is the provincial health officer; this position is entirely administrative and involves no clinical responsibilities.

Several important features may be noted regarding the overall staff distribution in the province. First, as would be expected, the 'higher level' facilities, in particular Mendi hospital and Tari health centre, take a high proportion of the more highly-trained staff. Second, staff with higher levels of training are likely to be employed in positions which involve considerable administrative responsibility. The health extension officers at health centres are a clear example of this. As the senior health worker in a health centre area, a great deal of the health extension officer's time is taken up with administration of the health centre itself, the aid posts in its area, the supervision of other staff and involvement in committees at district and provincial level.(13) Essentially, the point being made is that bare figures of staff 'on the ground' do not necessarily indicate at all accurately the extent to which these staff are actually available for health work with patients.

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(13) In April 1979, a conference for all health extension officers in the province, to discuss venereal disease reporting, many of those present argued that such gatherings, while recognised as valuable, prevented them from doing what little medical work their other duties allowed.

Table 9.11

Southern Highlands Province
Health Staff by facility December,1978.

Facility	MO	HEO	N	NA	APO APS	Total
Mendi Hospital	4	1	32	16	8	61
Tari Major Health Centre	2	1	11	21	6	[a]41
Health Centres	-	12	22	71	14	119
Health subcentres (non govt)	-	-	31	NA	-	31
Aid Posts(14 non govt)	-	-	-	-	154	154
Provincial Health Office	1	4	4	-	4	13
Total	7	18	100	108	186	419

notes (a) M.O. - medical officer(doctor), include Provincial Dental Officer,Mendi Hospital.

(b) HEO - Health Extension Officer

(c) N - Nurse

(d) NA - Nurse Aide

(e) APO/APS - Aid Post Orderly/Aid Post Supervisor

(f) No information available for number of nurse aides in non-government health subcentres.

(Source: Compiled from Provincial Health Office records,Mendi)

The province has inadequate levels of health staff; shortage of resources makes improvement of this situation extremely difficult, especially when the propulation is growing. Table 9.12 demonstrates this for doctors and nurses: the poor position

of the Southern Highlands relative to the country as a whole is clear, as is the effect of population growth, which continues to produce unacceptably high population/staff ratios despite increases in staff numbers.

Table 9.12

Southern Highlands Province
Population per doctor, population per nurse. 1973,1977 and 1978.

	1973	1977	1978
Population per doctor	28890	35816	35368
(PNG)	(17740)	(13467)	(NA)
Population per nurse	3260	2498	2475
(PNG)	(1720)	(1504)	(NA)

(Source: 1973 and 1977 MacPherson,1978. Appendix 1:1 and 1:2, 1978 computed from unpublished data, Provincial Health Office, Mendi)

The Southern Highlands ranked fourteenth in both 1973 and 1977 in terms of population per doctor; for population per nurse the province ranked sixteenth in both years, (MacPherson,1978) As information was not available for other provinces for 1978 it was not possible to compute rankings for that year.

In terms of access to facilities and staff, the province is worse off than nearly all other provinces. For both health facilities and health staff, population ratios exceed those recommended by the National Health Plan. Within the province, there are significant variations in access resulting partly from

variations in population density and settlement patterns but also from the inappropriate location of some health facilities. Where non-government organisations are heavily involved in the provision of health facilities this maldistribution is more dramatic, reflecting the fact that the location of mission-based health work has been determined more by evangelical than health planning criteria.(14) Table 9.13 illustrates this point; the distribution of MCH sisters by district shows a much greater range than the distribution of HEOs. The former are almost entirely mission staff whereas the latter are entirely government staff.

It is not, however, possible to consider the provision of health services in terms of physical access or spatial distribution alone. Although these are of importance, patterns of utilisation are crucial. There is little point in efforts to ensure equal spatial distribution of facilities if these facilities are not used, or are used in ways which are inappropriate.

Utilisation

Much of the data already presented, although the best available in the province, has been seen to be inadequate and of dubious reliability. For consideration of utilisation, very little information exists; that which follows only indicates some broad patterns which would need to be investigated in depth before any firm conclusions could be drawn. Three sources are used here,

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(14) Personal communication Dr.Lynne Clarke,Provincial Health Officer, Mendi.

Table 9.13

Southern Highlands Province
Distribution of MCH sisters and HEOs, by district, 1978.

	Koroba	Tari	Nipa	Mendi	Kagua	Pangia	Ialibu	SHP
Population	34738	45701	47062	38988	34186	21391	25510	247576
Population/ MCH Sister	2672	5712	3137	3249	6837	4278	4251	4305
Population/ HEO	17369	22850	11766	38988	17093	21391	25510	22138

(Source: computed from unpublished data Provincial Health Office, Mendi.)

each illuminating, to some extent, different aspects of utilisation.(15) First, admissions to Mendi hospital were analysed by place of residence of patients in order to ascertain to what extent the hospital serves the whole province. Given the very high cost of inpatient treatment at Mendi hospital, relative to other facilities in the province, the intention is that Mendi should serve as a referral centre for the province; table 9.14 shows the pattern of admissions in 1978. It is clear from these figures that Mendi hospital primarily serves the area around Mendi, with over 82 per cent of admissions coming from Mendi itself or Mendi district. It should be noted that Tari Major Health Centre acts as a referral centre for the three westermost areas, Komo, Koroba and Kopiago. Because of the way in which records were kept at the hospital it was not possible to distinguish between patients referred by health centres and those who sought admission without first going to their local health centre.

(15) see Chapter 5, for discussion of utilisation of health facilities in Papua New Guinea.

Table 9.14

Southern Highlands Province
Mendi Hospital inpatient admissions by stated home address (health centre area). 2 months, 1978.

Health Centre Area	Number	Percentage
MENDI TOWN	231	26.2
MENDI DISTRICT	495	56.1
KOPIAGO	1	--
KOROBA	1	--
KOMO	2	--
TARI	6	0.7
MAGARIMA	8	0.9
NIPA	9	1.0
MUNHIU	17	1.9
DET	17	1.9
IALIBU	40	4.5
KAGUA	10	1.1
PANGIA	21	2.4
ERAVE	16	1.8
PIMAGA	8	0.9
Total	882	99.4%

notes a) for period 13.3.78 - 12.5.78.

(Source: Compiled from Mendi Hospital records)

This pattern of utilisation has also been noted at Goroka Hospital in the Eastern Highlands province, where the majority of paediatric admissions in 1978 were found to come from within ten kilometres of Goroka.(16)

(16) Personal communication. Dr.Frank Shann, Goroka Hospital.

Mendi hospital does not serve as a referral hospital for the whole province, except in a minority of cases. While it is true that doctors from the hospital travel out to health centres on occasion, most of their work is at the hospital, and most of it is with patients from the immediate area. It is perhaps worth emphasising that the population of the town of Mendi is only about four thousand, or about two percent of the population of the province. As can be seen from table 9.14, admissions from the town are more than a quarter of all admissions. A very large proportion of the town population are public servants; it is these public servants and their families who constitute the major part of the 'Mendi town' admissions. The extent to which facilities at the hospital serve the minority wage-earning population was seen in more dramatic form in relation to dental services. In the Southern Highlands, there are full dental facilities at Mendi, Tari and Ialibu. In the case of Mendi, the provincial dental officer, the only fully-qualified dentist in the province, was extremely concerned that the dental service provided from Mendi was almost exclusively remedial dentistry for public servants.(17)

The second set of data relevant to the issue of utilisation was produced by a survey of patients during one week of November 1978 at Tari health centre. This was done as part of a national survey of health facility utilisation in preparation of the new National Health Plan. (Papua New Guinea, Department of Health. 1979) Table 9.15 shows inpatient admissions by type; it is very clear that most inpatients at Tari go directly to the

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(17) Personal communication. Dr.M.Marchment. Provincial Dental Officer, Mendi.

health centre without first going to one of the smaller health centres in the area or to the local aid post. It is important to note here that in the Tari survey, about half of the patients admitted were diagnosed as treatable by an HEO, that is they could have received adequate treatment at any of the smaller district health centres.

Table 9.15

Southern Highlands Province
Tari Health Centre, Inpatients by type of admission.1978.

Type of Admission	Number	Percentage
Self	85	67.5
Health Centre/ Health Subcentre	27	21.4
Aid Post	12	9.5
Unknown	2	1.6
Total	126	100

notes. a) Figures are for first week of November,1978.

(Source: From Papua New Guinea, Department of Health,1979)

Given that bed occupancy rates at the other health centres in Tari area are low, at Koroba and Kopiago less than fifty per cent[18], the extent to which patients 'by-pass' those centres and go directly to the major health centre is important.

Data available on place of residence of inpatients at Tari suggests, however, that this is not a major problem. As can be seen from table 9.16, less than twenty-five per cent of inpatients came from more than ten miles away from Tari, and the nearest other

(18) See table 9.5

health centre, Koroba, is about thirty miles distant. As with Mendi hospital, the Tari health centre appears to serve primarily the population in and immediately around Tari, although to some extent taking cases from a wider area. In the Tari case, as distinct from Mendi, population densities are significantly greater in the area around Tari compared with the Western part of the province in general.

Table 9.16

Southern Highlands Province
Tari Health Centre, Inpatients by place of residence.1978.

Place of residence	Number	Percentage
Inside town	32	25.4
Outside town:-		
0-4 miles	22	17.5
5-9 miles	23	18.3
10 miles and over	34	26.9
unknown	15	11.9
Total	126	100.0

notes a) figures for first week of November,1978.

(Source: adapted from Papua New Guinea, Department of Health,1979)

Given the patterns of ill-health in the province and the primary treatment purpose of health centres and aid posts, which is outpatient rather than inpatient care, the results of the survey of Tari outpatients are of more significance to the question of utilisation.

During the same week at the beginning of November,1978, 304 outpatients were seen. In the opinion of the health centre

staff, 97 per cent of these outpatients could have been treated by an aid post orderly. Eight patients were referred to Mendi hospital and only one patient was assessed as 'a proper outpatient for the health centre'. Of the outpatients who could have been treated by an aid post orderly one third stated that they 'preferred health centre treatment' and two thirds that the health centre was the closest health facility to their place of residence. These results demonstrate two important features of the problem of utilisation. First, the extent to which patients deliberately 'by-pass' lower level facilities and seek treatment at more sophisticated facilities if these are accessible, and second, that whatever the intention behind the establishment of more sophisticated facilities, once established in a specific location a particular facility becomes the 'local treatment centre'.(19)

The first issue is given further confirmation when the pattern of referral is examined. Given that nearly all these outpatients could have been treated at aid posts, it would not be expected that a significant number would have been referred by aid post orderlies. In fact, only one outpatient, out of more than three hundred, had been referred to the health centre by an aid post orderly.

The extent to which the health centre is acting as a local primary health facility is shown by tables 9.17 and 9.18. The first shows place of residence in miles from Tari and the second shows travelling time. It should be noted that the latter is not comparable to data discussed earlier relating to travelling times to aidposts, which were in terms of time by walking. The

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(19) See Chapter 11 for further discussion of this.

Tari outpatient data covers all forms of travel and some patients would have visited the health centre as part of visit to Tari by truck, perhaps to buy or sell goods at the market or for some other purpose. Taking the two measures together, however, it is very clear that for outpatient treatment, the health centre is primarily serving the local population.(20)

Table 9.17

Southern Highlands Province
Tari Health Centre, outpatients by distance. 1978.

Distance from Health Centre	Number	Percentage
1 mile	122	40.1
1-4 miles	116	38.2
5-9 miles	48	15.8
10 miles and over	15	5.0
unknown	3	0.9
Total	304	100.0

notes a) figures for first week of November,1978.

(Source: Adapted from Papua New Guinea, Department of Health,1979)

As the focus of primary care is intended to be the aidpost the evidence from this small scale survey of Tari health centre is disturbing, particularly with regard to outpatient treatment.

(20) That the people in the Tari area 'bypass' the aidposts and go directly to Tari health centre was confirmed by Dr.S.Frankel. (personal communication)

Table 9.18

Southern Highlands Province
Tari Health Centre. Outpatients by travelling time.1978.

Travelling time	Number	Percentage
1 hour	241	79.2
1-2 hours	24	7.9
2-3 hours	19	6.2
3 hours	19	6.2
unknown	2	0.6
Total	304	100.1

notes a) figures for first week of November,1978.

(Source: adapted from Papua New Guinea, Department of Health,1979)

The results confirm patterns observed elsewhere in Papua New Guinea, that where a choice exists, patients will tend to seek treatment from the most sophisticated level of facility. (Lewis , 1975.) The issue will not be pursued here, the purpose at this stage is to emphasise that consideration of simple spatial distributions of health facilities are inadequate.(21)

(21) The question of utilisation of health facilities in Papua New Guinea is discussed in Chapter 5. For full discussion of aid post utilisation, see Chapter 11.

The most important point in relation to aid post provision is that the little evidence there is suggests that large numbers of patients are by-passing aid post facilities and using hospital and health centre facilities for treatment which should be obtainable from aid-posts. This is important not simply to questions of spatial distribution but also to the nature of primary health care facilities and their relationship with the communities they are intended to serve.

In the Southern Highlands, as has been discussed earlier, transportation is presently a major barrier to population movement; efforts to improve internal transport systems are being made particularly with regard to developing the provincial cash economy.

As transportation improves, it is not unreasonable to assume that the pressure on the hospital, and the health centres, will intensify. The evidence from elsewhere suggests that the hospital will have great difficulty in performing the essential role on which the justification of its relatively very high expenditures rests - to serve as a referral centre for the whole province and provide, through mobile services based at Mendi, specialised services throughout the province.

Similarly, the health centres, which may be seen as performing, at least in part, an essentially similar role to the hospital within their local areas, are likely to find that they are acting as front-line treatment centres to the detriment of their intended functions.

Provincial Health Plans

The province has not so far produced a comprehensive health plan but two major sources have been used to inform the following discussion of health policy intentions in the province. The first is a series of internal Health Division papers, a number of which were intended to form the basis of a health plan to be produced in 1980. The second source, necessarily related to the first in many ways, are the submissions made to the World Bank as part of the Southern Highland Project.(22)

As discussed above, the health status of the population of the Southern Highlands is poor and ranks low in comparison with other provinces and the national average in terms of mortality, morbidity, number and availability of staff and facilities, and per capita expenditures. It is recognised within the province that there needs to be improvment in both the level of health resources and the quality of services. In addition, the need for health education as well as treatment services is clear. The problem is not, however, simply one of providing an equitable distribution of facilities and health education programmes. It is at the point where services interact with people, the fundamental interaction in any health system, where complex problems arise. This has been recognised in the province:

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(22) See Chapter 7 for discussion of the Southern Highlands Project.

> "....as the issues of birth, death, health and disease occur almost entirely in the villages so the success of health care programmes in the Southern Highlands and in similar rural areas depends almost entirely on the one hand upon the quality of health services available in the villages and their suitability to the local culture and on the other hand upon the extent to which villagers are willing to use available services as well as modify traditional practices which are injurious to health."
>
> (Southern Highlands Province, Department of Health, 1977: p.1.)

Two major groups of problems have been identified in relation to the development of more adequate primary health care in the province; first the attitudes and behaviour of the people themselves, especially those associated with traditional customs and beliefs, and second the performance of aid post orderlies and other basic-level rural health workers.

In 1977, the provincial health department prepared submissions to the World Bank; the basis of these submissions was a perceived need for better information on the realities of rural health services, and in particular, the interaction between health services and the people.

It was argued that more emphasis in provincial health planning would have to be given to 'quality' and the limitations of a planning model which was limited to quantitative distributional criteria was stressed. Three closely interrelated aspects of the problem were identified:

> " 1. <u>Staff</u>
> The efficacy of our extension work is poor through low morale and motivation, and inadequate skills and knowledge. This applies particularly to our health auxiliaries.

2. Poor Administration and Organisation within the department makes the problem worse.

3. Lack of Evaluation of the impact and appropriateness of our health programmes at the village level."

(Southern Highlands Province, Department of Health, 1977, p.4)

The case was made that only a health service based in rural communities could begin to deal with the problems identified. The proposed approach, which would involve maximum information flow from, and participation of, rural communities, was contrasted with the prevailing approach, characterised as "one of central determination and imposition".

Essentially, the provincial health department saw the need for a health service which would work 'with the people' and not 'for the people'. The problems of achieving significant qualitative improvement were seen as being only partly susceptible to technological or administrative solution. Within such a framework, the health department itself was seen as having four major aims. First, an emphasis on preventative health programmes founded on health education. Second, that its programmes should be flexible, and responsive to the needs of the people and the health workers in the field. Third, major emphasis would be put on local level health work such as aid posts, patrols, clinics, village medical aides and the provision of village health packs. Fourth, as a long term aim to commit the province to the development and maintenance of viable rural health teams.

A major barrier to the achievement of these aims was, and remains, the lack of information on the realities of rural health and rural health services. Thus, the specific requests for World Bank funding were related particularly to the establishment of effective data-collection, communication and monitoring systems. In addition, certain high priority health programmes were identified as requiring special assistance; these were family planning, nutrition and rural sanitation:

> "These interrelated problems constitute a large part of the biggest single threat to the welfare of the Southern Highlands people in the future, namely the problem of population, land and subsistence existence."
>
> (Southern Highlands Province,Department of Health, 1977,p.16).

Prior to the process of World Bank evaluation of detailed proposals then, the health department was arguing for a new approach. Distinctively different from that previously taken it emphasised the adoption of structures and planning mechanisms which would be dynamically responsive both to the needs and the articulated demands of the people of the province. Fundamentally, it was a call for a genuine 'Southern Highlands' health service. Those within the province who were responsible for the production of this approach were aware of the extent to which it offered rather more in the way of principles than it did in concrete, detailed programmes:

> "The World Bank has the opportunity to provide us with great assistance in attacking the central problems of village health as we have identified them.....If we succeed we will be privileged to have set up an approach which tackles the key limiting problems rather than side-stepping them, which is what we feel we have done up until now... [This plan] is trying to take us towards the very edges of health care.....our plan is only one step in which decision making and planning can move more and more towards the village and become more and more adapted to local conditions".
>
> (Southern Highlands Province, Department of Health, 1977:p.1)

The proposals put forward for World Bank funding were in fact similar to those contained in the National Health Plan of 1974, although the latter had not been realized in practice. The World Bank appraisal mission visited the province in September, 1977 and the detailed requests for funding were amended during and after that visit. By mid-1978 the World Bank had made its decisions regarding which health-related plans it was willing to fund as part of the Southern Highlands Project. Accepting the severe problems faced by the province and its relatively very poor status within Papua New Guinea, the Bank saw the need for:

> "a positive expanded program to improve both the physical infrastructure and the delivery of health education services....."
>
> (International Development Association,1978a:p.10.)

The objectives of the programmes which would be funded were seen as fivefold. First, to improve the quality of existing field staff through increased in-service training. Second, to increase the number of health staff, especially nurses and nurse's aides who would be more likely to work in their own

province. Third, to provice additional Maternal and Child Health facilities in underserviced areas. Fourth, to improve the morale of health workers and fifth, to monitor the effects of both health programmes and 'development' programmes in the province.

In specific terms, the World Bank was willing to assist in funding three developments which would comprise the health and nutrition component of the Southern Highlands Project:

> "a) construction and partial staffing of a nursing school and in-service training complex.
> b) construction of health subcenters in Kagua and Ialibu Districts; and
> c) support for a data collection and epidemiology unit".
>
> (International Development Association,1978a: p.12)

It was proposed that the new training complex be established adjacent to Mendi Hospital, and by mid-1979 work was advanced on the construction of this facility. It is intended to provide facilities for 75 student nurses, 30 student nurse's aides and 24 inservice trainees at any one time. Given current rates on the three-year nursing course it is expected that 15 nurses per year will graduate from the school. As there is no nursing school in Western Province, the new nursing school at Mendi is intended to serve both the Southern Highlands and Western Province. The justification for the training complex was given primarily in terms of the projected need for more nurses and the lack of in-service training facilities in the province. Table 9.19 shows

the projected requirements for nurses in 1981; without an expansion in staff numbers there would be a shortfall of 114 nurses in the Southern Highlands by 1981.

Table 9.19

Southern Highlands Province. Projected Nursing Staff Requirements, 1981. (a)

Present Staff(b)		Recommended Staff 1981			
Govt.	Church	Govt. (present institutions)	Govt. (new institutions)	Church	Total
61	29	142	12	50	204

notes a) assumes staff loss of 10% per annum and population growth of 3% per annum.

b) based on 1977 staffing levels.

(source: Provincial Health Office, Southern Highlands Province.)

Beyond the need for an increased number of nurses is the desire to increase the proportion of local nurses. Two major arguments are important here. First, the nurse work force in Papua New Guinea is not particularly mobile. Due to the differential rates of educational development, and social factors impeding recruitment of females, the nurse work force is predominantly drawn from the coastal and island provinces. There is a general reluctance among these nurses, as among other groups, to accept rural postings, especially in the Highlands. At present only 30 per cent of nurses

in the Southern Highlands Province are from that province; there are constant requests from nurses for transfers back to coastal areas.(23) At present the capacity of coastal nurse training schools far exceeds the capacity of Highlands schools. It would appear difficult to redress the imbalance by increasing Highlands intakes at coastal schools, essentially because of parental reluctance to allow girls to leave the province for training at coastal centres.

It is assumed that the new nurse training school at Mendi will produce health workers with community nursing skills and a 'community'rather than a 'hospital' orientation. This is is line with national policy on nurse training and is quite clearly going to be crucial to the development of rural health services in the province. A very large proportion of the additional health expenditure in the province during the life of the Southern Highlands Project has been allocated to nurse training. Table 9.20 summarises the health component project costs.

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(23) Personal communication, Sr.Vicki Reed, Provincial Nursing Officer, Southern Highlands Province.

Table 9.20

Southern Highlands Province. Health Component, Southern Highlands Project. projected costs 1979-1983.

		Costs(kina)
Nursing School and inservice training complex		
capital costs	627,700	
operating costs	638,400	1,266,100
Health Subcentres in Kagua and Ialibu Districts		
capital costs	224,710	
operating costs	77,000	301,710
Data Collection and Epidemiology		236,500
	TOTAL	1,804,310

Source: adapted from Table 23, International Development Association, 1978a.

The new training complex will, in addition to nurse training, be responsible for training of nurse's aides and provide facilities for inservice training for health workers, in particular aid post orderlies and community nurses. At present, nurse's aides are trained at Mendi Hospital without any teaching facilities or accommodation for trainees. The training has been done by the hospital matron on an ad-hoc basis and is hospital oriented. The new facility will not increase the number of nurse's aides being trained but is intended to allow properly organised, community oriented training through the provision of staff and accommodation.

Similarly, inservice training has been poorly organised and all sections of the health department recognise the inadequacy of the very limited inservice training available to health workers in the province, especially the aid post orderlies.(24)

The second major part of the project-funded health developments is the establishment of three new health sub-centres in Kagua and Ialibu districts. This was justified in terms of the presently very unfavourable staff/population ratios and the particular problems of physical accessibility in the areas concerned. Despite the case which can be made for this improvement in the distribution of facilities it is not immediately apparent why this area should be chosen for special treatment in preference to a number of other parts of the province with equally bad, or worse staff/population ratios. Although this is not discussed in available documents it may be, as was suggested informally by various sources within the province, that this area was viewed particularly favourably because a good deal of the planned economic development was intended to take place within the Kagua/Ialibu region of the province.

The third component supported by the World Bank is the Data Collection and Epidemiology Unit. The provincial health department, as noted above, had argued for a substantial programme

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(24) See Chapter 6 for discussion of existing inservice training and supervision of aid post orderlies.

of data - collection, monitoring and evaluation as a key part of their proposed approach to health development. Their proposals included the appointment of a demographer, an epidemiologist, a social scientist and a 'communications expert'. In essence, the health department's proposal were for a team who would develop and maintain a system of information collection and communication closely related to a changing administrative system for delivery of health services; they were attempting to provide the basis for a health system organised "from the bottom up".

The response of the World Bank was to offer support for only one part of this somewhat ambitious plan. The Data Collection and Epidemiology Unit is in fact a continuation of the work of the Pneumonia Research Unit at Tari. That unit was established in 1970 primarily for research on respiratory infection. As a consequence of the need to determine the patterns and causes of morbidity of mortality the unit established surveillance and record systems which, by 1978, provided a body of baseline data, for the Tari area, on births, deaths, migratory patterns, wealth and nutritional status. National and provincial funding for the unit ceased in May 1978, and at that time, much of the data collected by the unit had yet to be analysed. The World Bank assistance would allow the unit to continue to operate, with a full-time director, with the primary justification for support being the possibilities for evaluation of economic development programmes.

Thus, although support was given for data-collection and monitoring, it was very much more limited than that envisaged by the provincial health department. Most important, the essence of the department's plan was lost; the 'new' unit, however valuable, would not, and could not, have the communications role argued for in the health department's submission. Although the results and techniques from Tari may be used throughout the province by the provincial health office it is clear that the emphasis must be on evaluation of the impact of programmes carried out by the administration and not, as suggested by the health department on the development of new forms of participatory planning and administration.(25)

The rural environmental sanitation proposal was not given World Bank funding; this aspect of the Southern Highlands Project again illustrates the difficulties faced by the province in achieving its own goals in the face of opposition from an outside funding agency.

As noted earlier, rainfall in the province is high; even in the dryest months there is an absolute sufficiency of water in the province, though there may not be surface water close to settlements. Indeed, at all times of the year many communities are at some distance from the nearest water source, as they are located on ridges well above running water. Rural communities

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(25) See Chapter 11 for further discussion of the problems of monitoring development in the province.

depend on streams and spring water for cooking and washing. The thatched roofs of the houses cannot be used as catchments for drinking water because of tainting by the grass.

The traditional settlement pattern, even in the most densely populated areas of the province, is one of dispersed hamlets consisting of single isolated homesteads of no more than three or four dwellings. Such a settlement pattern makes the provision of a central water supply difficult. (Chau,1973) Water is usually obtained from small springs, rivulets or creeks; drinking water is not generally taken from large rivers or still water areas. Very often water is carried and stored in lengths of bamboo, though this traditional means is increasingly being supplanted by the use of cans and other containers which may previously have contained cooking oil, kerosene or other imported supplies.

Not a great deal of water is used in cooking as most food is eaten raw, roasted or occasionally steamed. (Feachem,1973a) Little water is drunk at home. The exception being the newly introduced custom of drinking tea and other trade-store beverages. In general, it would seem that water is not available where defecation takes place and there is not usually much available within the home for handwashing . In fact, there is no tradition of handwashing or body washing in most parts of the province except in specific circumstances, such as among courting adolescents, at childbirth and certain other particular occasions. (Feachem,1973b)

Traditionally, people defecated in prescribed areas at some distance from habitation and water sources. The dispersed settlement pattern does mean that faecal material is desposited over a large area and is less likely to be a major source of contamination of water supplies. In the past, defecation grounds would be used as garden sites. Several factors have severely affected this traditional cycle however. The colonial administration initiated, and attempted to enforce, a programme of pit latrine construction; such latrines were, and are constructed of local materials and many are presently used. There is however no information available as to how many have such latrines in use and some evidence to suggest that they are used during 'official' visits but rarely used otherwise.

Pressure on land, from population growth, more intensive cultivation, and the alienation of land for permanent cash cropping severely restricts the continuance of the traditional system for the disposal of faecal wastes. That system essentially depended on the availability of what might literally be termed 'waste ground' which could be left for a considerable time before it was used for gardens.

Similarly, the present trend toward more dense settlement patterns in many areas of the province undermined the viability of the traditional system.

As noted earlier, gastroenteritis and dysentery together account for a large proportion of morbidity and mortality in

the province. The precise aetiology of either diarrhoea or dysentery in the province is unknown; there has been no systematic collection of either stool cultures or water source samples. It would seem, however, that hand-to-mouth transmission is the most likely route in the majority of cases.(26)

The basis of the proposed project was the provision of demonstration water supply and latrine units in key locations: aid posts, community schools, and community centres. In addition, it was argued that health education programmes would use these units to reinforce teaching. The proposal was for the construction of 60 water supply points and 300 latrines for demonstration purposes in the first three years of the project. These demonstration units were intended to stimulate demand for water supply and latrines. The provincial health department estimated that 250 water supply points would be requested and 2,500 latrines constructed by the people themselves over the whole five-year project period. As part of this effort it was proposed that social scientists should attempt to establish the factors affecting choice of water supply method and that work be done to establish more clearly the relationship between water supplies and health in the province. The total cost of these proposals was estimated to be k.366,000. (Southern Highlands Province, Department of Health,1977).

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(26) I am indebted to Dr.Lynn Clarke,Provincial Health Office and Dr.J.Millar,Medical Superintendent, Mendi Hospital, for their comments on this issue.

The basic objective of the provincial proposal was to reduce the incidence of infectious gastrointestinal disease- diarrhoea and dysentery- and reduce intestinal parasitism. The proposal was very clearly within the approach to health which the province was attempting to develop, but in the absence of systematic data on morbidity or mortality in the province the proposal was inevitably relied on assumptions rather than hard evidence. This was true of the projected effects on gastrointestinal disease but even more true of the additional projections that the programme would reduce the incidence of skin diseases and infections - scabies, sores, infected wounds and so on, which, as noted earlier, form a major part of the conditions presently treated at the health facilities in the province.

The World Bank's negative response to these proposals is illuminating of its approach to the funding of Southern Highlands Project in general; the overwhelming emphasis was on cash crop development and within the health component specifically there was bias towards projects which were immediately measurable - as with the support for facilities which would provide training for a given output of nurses.

In their rejection of the provincial proposals, the World Bank stressed the failure of previous attempts to improve environmental sanitation:

> "Many previous programs have failed in motivating people to use and maintain wells or pit latrines installed by government".
> (International Development Association,1978b:p.4)

At the heart of their rejection, however, was the lack of evidence regarding the actual state of water supplies and patterns of use:

> "It is not clear just what the water supply systems would achieve. Would they provide a greater quantity of water; would they provide a better quality of water; or both? The level of contamination of most drinking water is not known: it may be relatively free of harmful pathogens. Water is not as accessible as it could be and it seems that only small quantities are used. What effect improving accessibility and quantity of water would have on hygiene.....is not clear".
>
> (International Development Association,1978b:pp.4-5)

They did accept that water supplies should be improved but pointed to "simplified systems" as more appropriate and less costly than those requested in the provincial proposal.

The proposal was rejected then, partly on grounds of cost but also on grounds of uncertainty as to the benefits of improved water supplies. One other set of arguments was adduced, however, which was dramatically bold in the manner of its presentation and quite fundamentally contrary to the approach to health being sought in the province:

> "....it is not certain that there is sufficient motivation on the part of the public to pay for, maintain, and learn how to use water supplies and sanitary facilities....."
>
> (International Development Association,1978b:p.5)

The province was seeking to use health facilities, and aid

posts in particular, as demonstration points in a health education programme which would involve aid post orderlies in what was regarded as one of their major roles - health improvement and the prevention of disease. The World Bank argues that 'the population must be motivated before such a program' and in doing so displayed attitudes to the people of the province which were very different from those held by those responsible for health services in the province.

The rejection of the environmental sanitation and water supply component of the provincial proposal seriously undermined the total strategy the province wished to adopt.

In summary then, the health component of the Southern Highlands Project is, in terms of new development, largely confined to the establishment of the nurse training school and the provision of in-service training facilities.

Given the nature of the Southern Highlands Project, as discussed earlier(26), it is important to note the Bank's own comments of the lack of specific nutrition components in the project. The province has, as has been noted, a serious nutrition problem, which the evidence suggests is worsening.

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(26) See chapter 7 .

> "Despite this situation, the project appears to have no nutritional program, at least in the traditional sense.....However, as will be pointed out, there are in fact numerous components designed explicitly to improve nutrition".
>
> (International Development Association,1978a:p.22)

Arguing that the nutrition components of the project "are more of an indirect nature", the Bank stresses, above all, those elements of the project aimed at improving subsistence agriculture. Both by increasing yields and encouraging crop diversification ot is argued that prevailing nutritional problems can be dealt with and any deleterious consequences of cash crop production offset. The dangers of the latter for nutrition are acknowledged(International Development Association,1978a:p.23), both in the possible displacement of food crop production by cash crop production and the adverse dietary effects of new cash incomes. The Bank remains optimistic that the overall effects of rapid cash crop development will be beneficial and emphasis is put on the use of formal education for nutrition education and the anticipated results of more, and improved, training and re-training of health workers.

For the Southern Highlands Project then, which has been seen to be the vehicle for major social and economic transformation for years to come, direct health input is low. Within that health input,training of health workers, and primarily nursing staff, dominates. The overwhelming faith of the World Bank in the rapid economic growth inevitably improving the quality of life is very clearly demonstrated.

In addition to the Southern Highlands Project, however, the province may attempt to plan its own health expenditures. The extent to which such planning can significantly affect existing patterns of health provision is of course severely limited as current services and commitments already made considerably restrict the possibilities for radical change.

Finally then, it is possible to gain some indication of the intentions of the province with regard to health from the preliminary documents produced as the basis for the preparation of a provincial health plan. These appeared in 1978, and as noted earlier, the province had not, by mid-1979 produced a health plan. Given the paucity of information on which to base such a plan, the uncertainties of World Bank funding,and the impact of decentralisation and National Public Expenditure Planning this is perhaps not surprising.

In 1978, each section of the health department produced preliminary five year plans for the period 1979-1983. Overall, the themes of the 1977 document were reiterated; more emphasis on preventive health care and nutrition, a shift from centralised planning and administration towards a community based health system depending crucially on a population both aware of the nature of health problems in the province and motivated to take action.

All sections except malaria and tuberculosis saw the need for more resources and a shift of emphasis to community health workers

and communities themselves. In particular the role of the aid post orderlies was stressed by virtually all sections. Evironmental sanitation, health education, dental, leprosy, and nutrition sections all argued for a greater role to be taken by the aid post orderlies in the attainment of their objectives. The health education section stressed that aid post orderlies should be involved in educating the community for self-help in health, reducing and controlling preventable disease, and encouraging the community to use the health services. The dental section planned to "retrain all aid post orderlies in the province to be able to treat emergency dental pain". (Southern Highlands Province,Health Division,1978)

The leprosy section saw the aid post orderlies as crucial to a policy which integrated leprosy control with the overall work of the health department. In doing so, they stated clearly what other sections argued for their particular activities:-

> "If we are to expect the A.P.O. to be in the foreground of primary health care he must have health education materials at his disposal, particularly flash cards and posters. In order to run an effective leprosy control health education programme we must be able to supply the A.P.O. with appropriate materials,tools and training."
>
> (Southern Highlands Province,Health Division,1978)

These tentative plans by the various sections of the health department did not constitute a health plan for the province; they did indicate the general direction of desired health service

development in the province. As emphasised above the dominant themes were those of the 1977 World Bank submission. The World Bank funded Southern Highlands project itself did not carry through into specific programmes of action the principles embodied in the provincial health departments proposed approach. In 1978, there was a clear awareness within the provincial health department that health services must be developed both quantitatively and qualitstively in response both to existing needs and the impact of rapdi social and economic change, which has begun already.

It is in this context that the survey of aid post orderlies in the province must be seen. As has been heavily stressed earlier, this group of workers is seen as having a pivotal role in a community-centred rural health. Internationally, nationally and provincially their importance is emphasised. The Southern Highlands province of Papua New Guinea may be seen as epitomising the problems faced by rural populations throughout the underdeveloped world.

References - Chapter 9

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CHAPTER 10

SURVEY OF AID POST ORDERLIES IN THE SOUTHERN HIGHLANDS PROVINCE

This chapter contains the results of a survey of government aid post orderlies in the Southern Highlands province. The greater part of the information presented here was gathered by means of a mailed questionnaire and is therefore subject to the limitations and constraints associated with that form of data-collection. There was, however, a remarkably high response rate of 80 percent and much of the data was substantiated by interviews with a proportion of aid post orderlies. The intention was to gain some understanding of the characteristics, perceived problems and attitudes of this group of health workers. As noted in earlier chapters, aid post orderlies are seen as the focus for the development of primary health care in Papua New Guinea. Despite the considerable attention given to them in health plans and the consistent criticism of their performance, only very little has been done which would enable us to gain any understanding of this group.(1)

Results

At the time of the survey, January/February,1978, there were 120 aid post orderlies in government service in the province. The number employed by non-government organisation was small,

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(1) For details of methodology see Appendix. For discussion of other work see chapter 11.

certainly less than twenty, and so the information which follows relates to virtually the whole of this group of workers in the province.

Age

Determining the age of respondents is notoriously difficult in surveys of this kind; in this case it would seem that in most replies the statements of age were reasonably accurate. In a few cases estimates were made based on ages of children, dates, schooling, length of service as aid post orderlies and other information. Table 10.1 shows that a majority of aid post orderlies were between 20 and 29 years old; very few were over 40. This age distribution is typical of wage-employment in Papua New Guinea; rapid growth of government services and in particular the relatively recent development of education in the Southern Highlands means that, as a group, aid post orderlies are young.

Table 10.1

Age of Aid Post Orderlies

Age Group	Number	%
under 20	9	8.49
20 - 29	56	52.83
30 - 40	39	36.79
over 40	2	1.89
n =	106	100.00

This is of major importance if there is any intention of significantly altering the role aid post orderlies are to play in the health system. Although there will be recruitment due to growth and wastage, this is the group of workers which will continue in post for some considerable time to come.

Marital Status

Every aid post orderly in the province at the beginning of 1978 was male. This is the case in virtually all parts of Papua New Guinea though there are a few female orderlies in some coastal areas, with non-government organisations.(2) Virtually all the Southern Highlands aid post orderlies were married, as shown in Table 10.2; 6 of the 8 unmarried orderlies were under 20. Unfortunately no information was gathered on wife's education, place of origin or relationships within the community. This was one result of the need to contain the size of a questionnaire which continually threatened to become unmanageable. It was unfortunate that time and available resources did not permit this to be pursued since the position of the aid post orderly in the community will depend very often on his relationships, by marriage ,within the community in which he lives and works.

Of the married aid post orderlies, only one stated that he was not living with his wife at the time of the survey.

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(2) personal communication Ms. Ikky Suu , Institute of Economic and Social Research, Port Moresby.

Table 10.2

Marital Status of APOs

Marital Status		Number	%
Married		98	92.45
Single		8	7.55
	n=	106	100.00

Children

Of the 98 married aid post orderlies in the sample, only 6 did not have children. Questions were asked only about children living at the time of the survey, whether dependant or not, and no information was obtained here about other children. Tables 10.3 and 10.4 indicate the range of family sizes for this group and the numbers having children of different ages. It is not possible to make any useful comparisons between this group and the population in general in terms of family size, since for only a small proportion did the present number represent completed family size and the size of the group was too small to permit detailed comparisons by age. It may however be suggested, without any firm statistical support, that the group had slightly fewer children that the population in general and tended to have them slightly later. This might reasonably be seen as an effect of the education and training requirements for the more recent recruits.

Table 10.3

Number of Children	
None	6
1	15
2	17
3	18
4	15
5	9
more than 5	18
n =	98

Table 10.4

Ages of Children	
Children aged	Number having children in age group
less than 5	76
5 - 10	50
over 10	25

(n = 92)

Place of Origin

If an aid post orderly is intended to work with the local community and not simply supply services as a representative of an outside agency then acceptance by that community is crucial. It must be expected that, as a general rule, an 'outsider' will be less successful in this regard than an 'insider'. In addition to obvious factors such as language, knowledge of local customs and life-styles, there will be complex systems of belief and patterns of social relationships which the outsider may be

excluded from quite regardless of any attempts he might make to learn. As can be seen from Table 10.5. a small proportion, 6.7 percent, of aid post orderlies come from outside the province. There have been attempts to recent years to improve the allocation of orderlies recruited from within the province, but there is still a large proportion, 37.1 percent, working outside their own local areas of origin. For this analysis 'area' was defined very widely to mean essentially the geographical area covered by a particular language group. Given the nature of the social system in the province this definition would somewhat understate the numbers working outside their own communities of origin.

Table 10.5

Place of origin

Place of origin	Number	%
same area as working S.H.P.	59	56.2
different area	39	37.1
outside S.H.P.	7	6.7
n=	105	100.0

To a considerable extent, the present allocation of orderlies is a reflection of the extreme uneveness of educational provision within the province until relatively recently. Closely associated with this, it is those areas most effectively penetrated by missions which have, until recently, been the source of recruitment for both higher levels of schooling and training for positions such as that of aid post orderly.

There can be little doubt that the problems of the aid post system at present, and the possibilities of major improvement, are seriously affected by the fact that so many orderlies are not from the communities in which they are working. This is not to argue that an orderly working in his own community will necessarily act as a 'community health worker' but that an orderly from outside the community will have numerous barriers to overcome before he can possibly do so.

Languages Spoken

Table 10.6 shows the language ability claimed by this group of aid post orderlies.

Table 10.6

Languages Spoken

Language	Number	%
English	63	59.4
Tok Pisin	106	100.0
'Tok Ples' (of area working in)	100	94.3
Other	49	46.2

(n = 106).

There is no doubt as to the fluency of these aid post orderlies in Tok Pisin, the major lingua franca of Papua New Guinea. All the questionnaires for this survey were completed in Tok Pisin, apart from three completed in English. This demonstrates a high level of ability in Tok Pisin. Although

widespread, however, Tok Pisin is not universally understood in the province. Women, older people, and those in the remoter parts of the province tend to have only a very basic knowledge of the language.

The claim to speak English must be taken more cautiously and it would seem that 'familiar with' might be more accurate in most cases than 'able to speak'. In the great majority of cases, interviews with aid post orderlies were conducted in Tok Pisin even when they may have begun in English. There is little doubt from discussion with aid post orderlies that the predominance of English as the language of 'official' communication represents a major problem. In 1979, virtually all communications to aid post orderlies which originated in the central government health department were in English, as were all record forms, supply requests and other documents required for aid post administration. The provincial health office was attempting to use Tok Pisin as much as possible but much of the material from this source was in English.

In terms of communication between aid post orderlies and the people they serve the ability of the former to speak well the language of the area in which they are working, the 'Tok Ples', is obviously important. The evidence from this survey suggests that they do have this ability, but a much more thorough investigation would need to be done to establish the level of fluency and degree of communication between local language speakers and aid post orderlies from other parts of the province or from other provinces.

Educational Background

From table 10.7. it can be seen that almost all these aid

post orderlies, 92 percent, finished formal schooling at the primary level. Primary grade 6 is both the median and modal level of schooling for this group. Entry requirements for aid post orderly training have been rising in recent years, and there is some evidence of this in the median level for the 30-39 age group is primary grade 4 with younger age groups having higher levels of schooling. The preferred entry level for intakes to aid post orderly from 1979 onwards was secondary grade 2, with the increased attractiveness of aid post orderly employment together with increasing demands for wage employment from the growing numbers of secondary educated Southern Highlanders, the level of formal education is certain to rise. It is important to note that, particularly among older orderlies, levels of formal schooling were very low indeed. Two or three years of formal schooling in total was relatively common in the past. The very rapid change which has taken place within a very short time is a clear indication of the dramatic pace of educational provision in the province and the speed with which the 'formal qualifications' barrier has been erected. As noted earlier, access to secondary education in the province, although significantly greater than in the past, is severely restricted and opportunities are very unevenly distributed.(3)

A.P.O. Training

As can be seen from Table 10.8, a majority of aid post orderlies in the province had been trained at Mount Ambra

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(3) See Chapter 7

Table 10.7

Level of Schooling attained, by Age

School Standard	Age Under 20	20-29	30-39	40+	Total
primary(n.s)(a)	1	10	8	-	19
" 3	-	2	7	-	9
" 4	1	3	4	-	8
" 5	-	4	6	-	10
" 6	5	32	8	1	46
total primary	7	51	33	1	92
secondary 1	-	3	1	-	4
" 2	2	1	1	=	4
total secondary	2	4	2	=	8
TOTAL (n=100)	9	55	35	1	100
missing cases	-	1	4	1	6

note: (a) n.s. - no standard stated.

(57.5% per cent). This is one of the major government aid post orderly training schools.(4) The influence of Mount Ambra training on the work of aid post orderlies in the Southern Highlands is therefore considerable.

The remainder were trained at hospitals in different parts of Papua New Guinea; a large number at Mount Hagen in the neighbouring Western Highlands province. Of those who had been trained, only four received their training outside the

(4) for discussion of aid post orderly training at Mount Ambra see Chapter 6.

highlands region, and only two stated that they had not had any aid post orderly training. Just over half then had been through the Mount Ambra aid post orderly training programme; virtually all the others had been trained in hospitals, for their work as primary health care workers in the community.

Table 10.8.

Place of Training

Where trained	Number	%
Mt.Ambra	61	57.5
Hagen	19	17.9
Daru	2	2.0
Goroka	11	10.4
Banz	1	0.9
Enga	3	2.8
Wapanamanda	5	4.7
West Sepik	1	0.9
Moresby	1	0.9
not trained	2	2.0
n =	106	99.8%

Other Medical Training

This covers all kinds of medical training other than basic A.P.O. training, regardless of type or length of training; it includes short inservice courses. The majority of aid post orderlies who have had 'other medical training' in

addition to their A.P.O. training have, in fact, had one or more short inservice training courses. These vary from a few days to several weeks and are usually oferred within the province. They deal with specific aspects of A.P.O. work, most commonly those which require particular recording and reporting procedures, for example leprosy, tuberculosis and venereal disease. It can be seen from table 10.9 that three quarters of these aid post orderlies claimed to have had additional training of some sort.

Table 10.9

Other Medical Training

	Number	%
Yes	77	75.5
No	25	24.5
n =	102	100.0

Training for 'other' than medical work

Table 10.10 shows that 40 per cent of these aid post orderlies had been trained for other occupations, outside the medical field.

Table 10.10

Trained for 'other work'

Whether trained	Number	%
Yes	43	40.5
No	63	59.5
n =	106	100.0

The responses indicated a wide range of skills, acquired, for the most part, prior to aid post orderly training. The most recent recruits tended not to have this previous work experience, having moved directly from secondary education to formal aid post orderly training.

Among those who had such experience, some had worked with the Department of Primary Industry as agricultural extension officers, others had been trained as carpenters, drivers and mission workers. That a substantial number had such previous experience may be seen as significant both to their decision to become aid post orderlies and to the opportunities to leave aid post orderly work which the group with other skills may still have. It is again perhaps illustrative of the changing nature of the aid post orderly occupation that earlier recruits shifted from carpentry, driving and so on, whereas more recent recruits are required to have relatively high levels of formal education and thus enter the occupation directly. The possibilities now for later entry via skilled manual work are

extremely limited. The occupation is, essentially, being quite rapidly 'professionalised'.

To the extent that there are, among existing aid post orderlies, a number with 'other skills', the question may be raised of how these skills might be utilised to improve aid post provision in the province. An obvious group here are those trained in agricultural extension work; nutrition programmes in the province have emphasised the role of the aid post orderlies in disseminating information on better food crops and stimulating the use of such crops in their local communities. There had not been any attempt, however, to identify those aid post orderlies whose previous experience might make them potentially more successful in this task. The provincial health department was unaware, except on an ad hoc basic of the previous occupational background of the aid post orderlies in the province.

As a further example, demonstrations of minor housing improvements, particularly with regard to ventilation, might be effectively done by assisting aid post orderlies with carpentry and other building skills.

This group of aid post orderlies then, possessed a range of skills beyond those received in medical training, many of which might be utilised in relation to primary health care. One of the effects of rising educational entry requirements is to gradually reduce the proportion with such skills and increase the number whose only formal training is medical.

Length of Service

Table 10.11

Length of service as APO.

Length of service	Number	%
up to 2 years	1	0.94
2 - 5 years	17	16.04
5 - 10 "	28	26.42
more than 10	60	56.60
n =	106	100.00

notes: a) $\bar{x}$ = 11.99 years
b) s = 6.04 years

Leaving aside questions of the value of their experience, it is clear from table 10.11 that the Southern Highlands has a significant number of aid post orderlies with considerable experience of this work. The mean length of service for the group was almost 12 years and given this fact, many of the frustrations and complaints discussed below are understandable and perhaps even more disturbing. In terms of reforming aid post provision in the direction of achieving a genuine and effective system of primary health care the fact that the majority of aid post orderlies are long-established in their positions, and perhaps therefore in their ways of working, may be seen as problematic. On the other hand, the accumulation of experience represented here may be seen as a resource which could be extremely valuable.

Having discussed some characteristics of this group of aid

post orderlies we now move to certain aspects of their work.

Record-keeping

The aid post orderly is supposed to keep daily records of attendance and treatment given. In addition, he is expected to maintain a variety of other records related to his work and the health status of the population he serves. The recording of notifiable diseases and referrals of patients to other health facilities are examples of the latter.

The ability of the provincial, and ultimately the national, health department to monitor the aid post service and its effectiveness depends to a large extent on the existence, and reliability, of these records. Many aid post orderlies in the group surveyed expressed criticism of this aspect of their work claiming that it was difficult, time-consuming and in many instances, futile. There appeared to be a commonly held view from the mailed questionnaire responses, which was supported by the results of interviews, that even if records were kept diligently they were hardly, if ever, used by the health department for any useful purpose. One purpose of the health workers newsletter - 'Helt Wokman Nius' - produced by the provincial health department, was to counteract this attitude by disseminating provincial health information based on data from aid post records.

Table 10.12 shows responses regarding the difficulty of record-keeping. Less than a third found this aspect of the work 'easy'.

Table 10.12.

Difficulty of 'keeping records'

	Number	%
'easy'	32	30.8
'sometimes hard'	51	49.0
'hard'	21	20.2
n =	104	100.0

It might be expected that the longer an aid post orderly has been doing this work the easier, through familiarity and practice, this aspect of his job would become. However, bearing in mind the increasing sophistication of records required, the changing educational level of aid post orderly recruits over time, and the changes in training, the results shown in table 10.13 may not be surprising.

It is quite clear from these results that the aid post orderlies with fewer years of service find this aspect of their work easier than their more experienced colleagues. This may be due to the factors mentioned above but could of course be due to the accumulation of more years of perceived futility. Although there was some indication that this latter effect

Table 10.13

Difficulty of record-keeping by length of service

Length of Service	'easy' number	%	'sometimes hard' number	%	'hard' number	%	total number	%
up to 2 yrs	1	(100.0)	-	-	-	-	1	(100)
2 - 5	6	(35.3)	9	(52.9)	2	(11.8)	17	(100)
6 - 10	10	(37.0)	11	(40.8)	6	(22.2)	27	(100)
over 10	15	(25.4)	31	(52.6)	13	(22.0)	59	(100)
TOTAL	32	(30.8)	51	(49.0)	21	(20.2)	104	(100)

n = 104

was significant is some cases, evidence from interviews, and examination of aid post records, would suggest that older aid post orderlies do have real problems with the increasing number of forms and documents associated with their work.

With well over half of all aid post orderlies reporting some difficulty in this part of their work it may be that attention should be given to several possibilities. First, the records which are presently kept could be simplified, and language is perhaps an important issue here; more extensive use of Tok Pisin, rather than English would be beneficial. Second, additional help could be given to aid post orderlies experiencing particular problems. Third, more efforts could be made to make aid post orderlies aware of the value of the information they are collecting. If, as has been consistently proposed, aid post orderlies, and others, are to be used as the basis of more comprehensive data collection systems, this would

seem to be crucial. The evidence of this survey, in total, suggests a high level of ability, over the group as a whole, in written Tok Pisin and a good level of awareness of significant issues. What is suggested here is that the present problems with record-keeping are related more to the degree of involvement of these workers and the perceived relevance of this task than to low levels of ability.

Supplies

The aid post is intended to be the most accessible point for the distribution of medical supplies, under supervision, to the rural population. The lack of supplies at aid posts was one of the most consistent themes in the responses of aid post orderlies and, in the complementary study of community attitudes, of the people themselves. As noted earlier, there are severe problems of transportation and communication in the Southern Highlands province. At the time of the survey, orderlies most often obtained their supplies from health centres when collecting their pay every fortnight. For some, this would involve a journey of up to six or seven hours, usually by foot. It seemed to be generally the case that health centres did not keep stock control records for each aid post in their area, which might give the possibility of anticipating requests from aid posts but simply responded to requests for supplies each fortnight, to the extent that their own supply position allowed.

Without adequate supervision of aid posts, and there can

be no doubt that supervision, for a variety of reasons, is presently inadequate, there can be little control of the use made by aid post orderlies of the supplies they do have or their efficiency in terms of stock control and advance ordering.

It is very common for orderlies to wait until a particular items is used up, or virtually so, before attempting to obtain it on his next visit to the health centre. This may mean there is a period of several days during which the aid post is without the particular item. This period may be considerably extended if, on requesting the item from the health centre he finds that stocks there are exhausted. The more distant the aid post is from the health centre and the more difficult transportation and communication, the more severe this problem can become. If the aid post does not have its basic supplies the effects are clearly serious. Alternative health facilities may be effectively inaccessible, thus depriving the population of any treatment. On the other hand, if other facilities can be used the local population may prefer to use these facilities, particularly, as in the case of the health centres, when supplies are rather more assured. Poor supplies at the aid posts undermines their status in the community and seriously affects utilisation patterns.

In this survey, 'supplies' were divided into three groups; drugs and medicines, bandages and other medical supplies, and 'aid post equipment' (pans,lamps,primus stoves, tools,etc.). Table 10.14 shows the overall perception of the adequacy of

supplies, tables 10.15 and 10.16 indicate the position regarding the three different groups of supplies.

Table 10.14

Adequacy of supplies

	number	%
'o.k.'	6	6.0
'sometimes short'	77	76.2
'not good'	18	17.8
n =	101	100.0

Table 10.15

Shortage of Supplies, by type

Type of supplies	number	%
'drugs etc'	73	82.2
'bandages etc'	35	38.5
'equipment'	47	51.7
n = 91)		

notes: a) number and percentage of all aid post orderlies answering who stated these supplies specifically as 'being short'

Table 10.16

A.P.O.s stating that 'supplies are short', by type of supplies.

Supplies	number	%
drugs only	28	30.8
bandages etc.only	3	3.3
equipment only	12	13.2
drugs and bandages	13	14.3
drugs and equipment	16	17.6
bandages and equipment	3	3.3
all three	16	17.6
(n=91) total	91	100.1*

* due to rounding

These figures do not, of course, indicate the state of supplies at aid posts but insofar as they are reliable, the perceptions of aid post orderlies as to the state of supplies. Thus they reflect both the actual state of supplies at the time the question was answered and the particular aid post orderly's view as to what was important. These results, therefore, need to be interpreted with particular caution; comprehensive physical checking of the actual supply status at aid posts was not possible for this survey.

Despite their consi derable limitations, they remain useful as an indication of the aid post orderlies' perception of their situation; in short, this is that they are poorly supplied with what they need to do their work adequately.

A.P.O. Perceptions of 'Common Sicknesses'

It was not intended here to derive information regarding the actual patterns of morbidity and mortality[5], but rather what the aid post orderlies saw these to be. The aid post orderlies were asked to check a short list of sicknesses and given the opportunity to note additions to that list. Table 10.17 gives the results of the check list; table 10.18 gives a summary of the additions 'written-in' by aid post orderlies.

Table 10.17

Common Sicknesses

Sickness	Number checking
Diarrhoea	86
Wounds	17
Pneumonia	84
Malaria	61
'Other'	67
(n = 106)	

note: results obtained from respondents 'checking' a list given to them. Both 'pneumonia' and 'diarrhoea' are clearly used to cover a wide range of specific conditions.

(5) see Chapter 8 for discussion of the available evidence on morbidity and mortality in the province.

Table 10.18

Other Common Sicknesses

Sickness	Number of APOs mentioning
dysentery	26
influenza	21
scabies	19
pig bel	18
gastro enteritis	14
'worms'	12
malnutrition	12
'coughs'	11
'sores'	11
measles	10
leprosy	7
bronchitis	6
tropical ulcer	6
whooping cough	5
arthritis	4
tuberculosis	4
venereal disease	4
conjunctivitis	3
'stomache ache'	2
meningitis	2
hepatitis	1
tinia	1
snake bite	1

(n = 67)

Results such as these, obtained by the methods noted earlier, must be treated with extreme caution. Several features are nonetheless worthy of comment. First, and not surprisingly, the general pattern follows that suggested by what evidence there is of prevailing morbidity and mortality. The overwhelming importance of gastro-enteric and respiratory infections is underlined once more. Second, the rather small numbers adding 'malnutrition' and worms, only 12 in each case, may suggest something of the aid post orderlies' perception of sickness in the context of their role. It was clear from interviews that aid post orderlies were not distinguishing such things as malnutrition

and worm infestations as 'conditions' rather than 'sicknesses'. With prompting, all aid post orderlies interviewed were prepared to accept both of these as 'sicknesses'.

The point being made here is that all the available evidence would suggest that both of these are of major significance in morbidity, but not, in most cases as the 'presenting-symptom'. Especially in the case of malnutrition, the aid post orderly has no specific medicine to offer. 'Sickness' in the community, is, for these health workers, that which they can treat, directly and explicitly. While acknowledging that the evidence here is extremely weak, it is argued that there is some support for the case that these aid post orderlies display, through these responses, a perception related closely to a curative and medicine-based orientation.(6)

Family Planning

All 103 aid post orderlies who answered the question on family planning, stated that they 'gave advice' on family planning. From supplementary remarks on questionnaire and from the complementary interview material it is clear that 'giving advice' has been liberally interpreted. It may range from simply indicating that 'too many children may not be good' through more specific advice on spacing and limitation to detailed advice on, and assistance with access to, family planning methods.

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(6) this is discussed further in Chapter 11.

Just over half the orderlies claimed to have family planning supplies at their aid posts. This figure seems rather high and may be due to a misinterpretation of the question in terms of 'have you ever had family planning supplies at your aid post?'.

The figure for those aid post orderlies interviewed was one third and this is likely to be much closer to the real proportion of aid posts having such supplies at the time of the survey. There is further support for this in that only 36 of the 56 stating that they had supplies responded to a question asking what type of supplies they had. All 36 stated that they had contraceptive pills and 18 that they had both pills and condoms.

There is in fact a good deal of confusion in the provincial health department as to which aid posts have such supplies. Two aspects of these results were surprising; first that so many aid posts had contraceptive pills, and second that aid posts had condoms.

The policy of the health department has been to restrict the distribution of contraceptive pills to health centres and only a very few selected aid posts. It was somewhat disturbing to the health department to find that very many more aid posts had these drugs. It seems likely however, that very many reporting such stocks had very limited quantities and rarely, if ever, dispensed them. It was not possible to establish how this more widespread distribution had come about.

With regard to condoms, current health department policy was that these were not available through health facilities but only

by purchase from tradestores. Some aid posts appeared to have continued their stocks from before the change of policy, but others seemed to have obtained supplies from health department sources despite the policy. The trade-stores are in fact supplied by the health department and so the situation was explicable, but again, somewhat disturbing.

There is considerable confusion regarding this aspect of the aid post orderlies' work, underlined rather dramatically by the surprising number who had supplies.

There have, in fact, been several changes of policy in recent years and at certain times considerable emphasis was put on the aid posts as sources of family planning supplies in particular areas of the province. The current policy is very much more cautious and it is argued that only those orderlies who have had specific in-service training and who can be adequately supervised should be involved in the distribution of contraceptive pills.(7)

The present confusion appears to be largely a legacy of a series of policy changes.

Malnutrition

As noted earlier, malnutrition is a serious problem in the Southern Highlands; there is not a great deal of clinical malnutrition but sub-clinical malnutrition contributes significantly to the high rates of infant morbidity and mortality.

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(7) personal communication Sr.V.Reed, Principal Nursing Officer, Southern Highlands Health Division.

The focus of efforts to combat this problem is the Maternal Child Health clinic; there is at present no clearly defined role for the aid post. In general terms it is expected that aid post orderlies are competent to identify cases of malnutrition among children who will, almost always, be brought to them for some other condition. Assuming that orderlies can identify such cases, several courses of action are seen as desirable. First, orderlies should attempt to ensure that the child attends the Maternal Child Health clinic if this is feasible. From 1978 onwards, all children attending such clinics have had health record books , which should be seen by the orderly when treatment is sought at the aid post. By this means, a complete record of treatment, immunisation and nutritional progress should be maintained. Referral then, is of primary importance in cases of this kind. Second, it is hoped that aid post orderlies will advise parents on the nature and causes of malnutrition in children. Ideally, this should be part of continuing health education role in the community and should, therefore, involve both men and women. It should not be restricted to a few words of advice to mothers of malnourished children brought for treatment.

Third, there is the hope that aid post orderlies will act as communicators, innovators and mobilisers in the community as part of the attempt to improve the quantity, quality and variety of food crops grown for consumption.

Potentially , therefore, the aid post orderlies role in this

respect is extremely important. The problem of malnutrition illustrates very well the inadequacy of a simple treatment role for the primary health care worker.(8)

In this survey the orderlies were asked "if a small child is brought to you and you think he/she is not eating proper food, what do you do?". Responses to a question such as this are clearly not expected to provide any reliable information on what actually happens at aid posts but rather to indicate what these aid post orderlies think is generally the 'right' thing to do. Tables 10.19 and 10.20 show that nearly all would give advice to parents, more than half would refer cases of malnutrition and although three suggested 'giving medicine' as a course of action, none would do this alone.

Table 10.19.

Action when 'child not eating proper food'.
Number mentioning type of action.

Action	Number
give medicine	3
give advice(to parents)	92
refer(to health centre/ MCH clinic)	57
	(n = 104)

(8) this is discussed at greater length in Chapter 11

Table 10.20

Action when 'child not eating proper food' Number of aidpost orderlies by combinations of types of action.

Action	Number
advice alone	46
advice and referral	44
referral alone	11
advice, referral and medicine	1
medicine and advice	1
medicine and referral	1
	(n = 104)

Any substantive comment on this aspect of aid post orderlies' performance would demand more information on the content of advice given to parents and the effectiveness of referral to other health facilities. From discussions with aid post orderlies and the results of the survey it would seem that 'advice' is very often of the most general kind and does not bring with it specific information and assistance which would enable parents to put into practice generalised exhortations to "feed the children properly". The assumption, which was evident in many of the responses to this survey, that poor feeding of children results from 'wrong attitudes' or 'lack of knowledge about feeding', finds little support in studies done of this problem in the Southern Highlands. The situation is extremely complex but as the 1978 study of the Nembi Plateau suggested:

> "the solution to the problem must be sought in a manner which increases absolute food production, improves the quality of food produced, as well as maintaining and even improving, fertility .....the causes of child malnutrition must be very closely linked to the living conditions of women and their place in the society."
>
> (Allen et.al.,1978.p.19)

Given this analysis of the problem, questions must be raised as to the present and potential role of the aid post orderly. What must be the case is that little is to be gained from aid post orderlies simply telling parents what they know already, that is, that they should feed their children properly. The aid post orderly, as a point of contact in the community must be enabled to offer more practical assistance by explanation and example of how this objective can be achieved.

Utilisation of Aid Posts

As discussed earlier(9), it is very well established that very many people do not use the aid posts when they need treatment. The aid post may be inaccessible, people may seek treatment at other health facilities, thus by-passing the aid post, or they may seek alternative sources of treatment than those available from the formal health services.

The question used in this survey to assess the aid post orderlies' perception of use by the population of the services they were providing was 'olgeta taim ol pipol i sik ol i save kam lukim yu o nogat?', which was intended to mean 'when people

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(9) see Chapter 9

are sick do they always come to you(for treatment)?' In the event, the question proved useless for the purpose as 90 of the 98 responses were affirmative. The question was almost invariably interpreted as asking 'Do people come to the aid post all the time?', that is, every day, at night, at weekends.

However, a supplementary question, which asked why people didn't come when they were sick, did produce answers which demonstrate that aid post orderlies are aware, as they must be, that many people do not use the aid post service when they are sick. Table 10.21 lists all the reasons suggested by this group and the number of orderlies suggesting particular reasons.

Table 10.21. "Why Don't People come to Aid Post?"

	Reasons	Number of APOs giving reason
1.	'les long kisim marasin'	22
2.	if APO no good(or seen as no good)	9
3.	too sick to come	7
4.	'bihainim tumbuna (b)	7
5.	too far to come	6
6.	'bihainim lotu' (c)	3
7.	'tumbuna marasin, pastaim' (d)	3
8.	'dont like medicine'	3
9.	sickness passed	2
10.	when APO 'bighead'	2
11.	go elsewhere (e)	2
12.	'les long wok long Aid Post' (f)	2
13.	don't know how to get medicine	1
14.	no medicine at Aid Post	1
15.	sickness slight	1
16.	fear of referral	1
17.	fear of APO	1
18.	family/personal problems	1
19.	'marasin man bilong ples ol igat powa long ol gut' (g)	1
	n =	75

notes: a) 'les' was the most common explanation given for none-use. This may be seen as both a generalised, non-specific and non-commital explanation of the order 'they don't

come because they don't come'. But it also carries implications of attitudes to non-users. The term 'les' in Tok Pisin may be translated in a number of ways, according to context, as 'idle', 'lazy', 'tired', or 'tired of'.(10) The first two suggest faults in the population and would reinforce the view which the majority of these aid post orderlies hold of the need to 'educate' the population to accept and use the aid post service. The third may suggest problems of access compounded by sickness. The fourth, if accepted as an interpretation, may suggest a perception that people are consciously rejecting the aid post service having had previous negative experience of it. Complementary evidence from elsewhere in this survey suggests strongly that the first two interpretations are the most widely held. These aid post orderlies generally believe that non-use reflects undesirable characteristics in the populations they serve.

b) 'Bihainim tumbuna' - this is translated here as 'following traditional ways'. In this context, this is interpreted as both the specific alternative action of using traditional methods and medicine in the treatment of illness and a more generalised antipathy to 'modern medicine' as represented by the aid post.

c) 'Bihainim lotu' - translated here as 'following the ways of the church'. In relation to the use of health facilities the churches may have both prescriptive and proscriptive rules.

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(10) I am indebted to James Purapia, Department of Language, University of Papua New Guinea and Pius Pape, Department of Anthropology and Sociology, University of Papua New Guinea for their assistance with interpretation.

Robin(1978) , discusses the influence of churches in the Southern Highlands, and in particular of certain fundamentalist sects which have gained considerable influence in several local areas.

(d) 'Tumbuna marasin,pastaim' - the suggestion here is that people were using traditional medicine first and only later, when these methods have proved unsuccessful, are they using the aid post. It is well-established that this is a common feature of utilisation in Papua New Guinea and it is perhaps important to note how few of these aid post orderlies acknowledge the relationship between traditional medicine and the service they provide.

(e) 'go elsewhere' - it is again well known that many patients 'by-pass' the aid posts and seek treatment at health centres or hospitals. Information from Tari Health Centre(11) shows that a large proportion of outpatients that were considered to be suffering from conditions which could have been satisfactorily treated at aid posts. Again, the number of orderlies acknowledging this in their answers was very small, although it was very clear from other answers, and from interviews, that they were very conscious of this pattern of utilisation.

(f) 'Les long wok long aid post' - although only two orderlies suggested this in response to the questionnaire, those interviewed tended to put rather more emphasis on this reason.

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(11) see Chapter 9.

The phrase is interpreted as 'tired of working at the aid post' and refers to the practice, which varies considerably from area to area, of requiring either those who have had treatment, or the local community in general, to maintain the aid post. This may involve cutting grass, supplying firewood, building or repairing the aid post itself or the aid post orderly's house, and so on. There are two major reasons for the existence of this practice. First, there is a legacy from the period when aid post orderlies were poorly paid, part-time workers employed by local government councils. At that time, the aid post itself was most often constructed by the people themselves and supplies such as firewood and water, in return for treatment, were seen as a necessary supplement to the low wages paid to the orderlies. With the advent of full-time, and increasingly better-paid orderlies, part of the original justification for local community support of the orderly has gone. Similarly, provision by the provincial health department of aid post buildings, including housing in some cases, has altered the relationship between local communities and the aid posts which serve them. Despite such changes, and the present pattern is by no means uniform, many orderlies continue to demand 'benefits-in-kind' and services such as preparation of ground for gardening and the erection and maintenance of fences. It is clear from the survey of community attitudes that there is growing resentment of this practice. Aid post orderlies are seen as having well-paid employment, and very often very well-paid employment relative to most other people in the community. Assistance to the orderly is seen as simply improving further his superior position. It was clear from a number of responses that some

aid post orderlies abused their positions and used their control over access to medical treatment for their own advantage. This should not be over-emphasised,however, as in most cases it seemed clear that assistance was willingly given and was at a relatively insignificant level. It must be noted that such 'payments-in-kind' are not required at health centres and hospitals.

The second major reason for the existence of community assistance to aid posts is that it is, in general terms, encouraged by the health department. Herein lies a fundamental dilemma for the provision of primary health care. There is a strong desire to emphasise the relationship between aid posts and the community; awareness of the scale and nature of health problems in the province suggests the need for maximum community participation and local self-reliance. The general principle of the community taking some responsibility for its own health facilities receives widespread approval. This may be further buttressed by the view, held by others, that people should 'pay for what they get'. Those who argue that people will not value the service, unless it is somehow 'paid for', tend to support the notion of reciprocity at the aid post. Thus, from two rather different standpoints, there is perhaps a reluctance to see the previously existing practice of local community support disappear.

The major difficulty here is the contradiction between the development of a better organised, better supervised aid post service, staffed by more highly trained orderlies paid at levels

comparable with those for occupations with similar entry and training requirements, and the desire for maximum community participation. This fundamental dilemma will be discussed at greater length elsewhere.

In summary then, these aid post orderlies tended to stress characteristics of the population in explaining non-utilisation. Table 10.22 categorises the reasons suggested for non-use and it is important to note that a substantial number of orderlies pointed to deficiencies in the aid post system itself as deterring potential users. There is clearly an awareness in this group that many aid post orderlies are not providing the service they should, either because of incompetence or because of their attitudes to the job and the people.

Table 10.22 Reasons given for non-use of aidpost, by category.

Category	Number
'les' (a)	22
Negative aspects of Aid Post/Aid Post Orderly	19
Access/knowledge	14
'Traditional' influences/alternatives	11
other	9
	75

note: (a) see note (a), table 10.21.

Hygiene

An important part of the work aid post orderlies are expected to do is the prevention of ill-health by effecting improvements in local standards of environmental and personal hygiene. Questions were asked which were intended to indicate how orderlies perceived the problem and how they perceived their own role in affecting the situation. There was no doubt from the responses that hygiene, and environmental hygiene in particular, was seen as a major issue. Table 10.23 shows the results of a question inviting the orderlies to check items on a list of actions they advised people to take to improve hygiene. In addition, an open-ended question was asked on what people should do to improve hygiene; responses to this are shown in table 10.24.

Table 10.23. Advice on Hygiene Given

Type of Advice	Number checking
toilets	72
housing	66
washing	62
waste disposal	61
cooking	27
	(n = 106)

Table 10.24. APOs opinions on what people should do to improve hygiene.

Type of action	number mentioning
separate human/animal accommodation	13
'clear' living areas	4
clean water	4
keep cats	2
clean teeth	2
cook pig thoroughly	1
eat tinned food	1
'make villages'	1
	(n =24)

Answers to 'checklist' questions are notoriously unreliable because they lead the respondent so strongly. The significance of responses may often lie in the number not checking particular items than in the numbers who do so.

The open-ended question used here gave no clues as to possible responses and was intended to assess what aid post orderlies considered most important in addition to items on the checklist. Only a small proportion of the group answered the question, unfortunately, but there are some interesting indications of things these aid post orderlies saw as important, or perhaps things they felt they should see as important.

There was considerable emphasis on the separation of animals

and people; many responses put this point in extremely vehement terms. It is worth noting that, in relation to this point, but to others also, a number of orderlies stressed the need for laws to enforce changes which were felt to be necessary for the improvement of environmental hygiene. Both in questionnaire responses, and in interviews, there were a significant number who expressed the view that people would only do what they should do if compelled by the force of law. This is interesting in at least two ways. First, it is of course immediately evocative of the attempts made by colonial administrations to similarly enforce these and other changes in the way people live.

Second, and of more direct significance is that such views suggest the existence of attitudes to the people and the relationship between health workers and the people which are strongly authoritarian and directive. If the development of primary health care is seen as dependent on community involvement and participation if it is to succeed in its objectives such attitudes may be seen as inimical to such a strategy.

A further open-ended question asked whether people took the aid post orderlies advice on hygiene. The majority answered with a variation of 'some do and some don't'. In table 10.25 the division between 'most do' and 'most do not' reflects the emphasis within the answers given. Some answers offered further explanation with regard to who the aid post orderlies felt took their advice. There was some reference to age differences; 'some young people listen but the old don't'. Women were seen

as being more responsive than men and a number of orderlies characterised those who did not take advice in a negative fashion; for example, 'some bigheaded men don't listen' and 'some careless people don't take advice'.

Table 10.25. APO opinion as to whether people take advice on hygiene

APO opinion	number of APOs	%
Yes, they do.	42	42.9
Most do.	14	14.3
Most do not.	40	40.8
No, they don't	2	2.0
	n = 98	100.0

A majority of these aid post orderlies did feel that people took their advice on hygiene but there was a significant number who felt that very many people did not. In relation to the continued efforts of orderlies to effect changes in the way people live, their opinions as to the likelihood of future success were seen as important. They were asked 'do you think people in your place(where you work) will change their ways(in relation to hygiene)?' Table 10.26 shows responses to this question.

Over 10 per cent felt that people would not change, which does not suggest that their efforts in this regard are, or would be particularly vigorous. The majority thought that change would

Table 10.26 APO opinion as to whether people will change their ways of living to improve hygiene

Opinion	Number of APOs	%
No	11	10.9
Yes, but slowly	64	63.4
Yes	26	25.7
	n = 101	100.0

come, but slowly. It is important to note here that in interviews, many orderlies expressed the view that changes, when they did come, would come as the result of factors other than their own health education efforts. References were made to the influence of schools, the effects of periods of 'working away', particularly in towns, and the changes brought by increased cash incomes. Many answers, both on the written questionnaire and during interviews, expressed a strong sense of frustration with this aspect of the work and a sense that a great deal of effort over a long period had frequently produced few perceived results.

When asked why people don't change or don't change more quickly a large variety of reasons were suggested. Table 10.27 gives these and shows that the majority of orderlies gave reasons which were related to the people themselves, rather than to any faults in the system of health education itself.

Table 10.27 Reasons given by APOs as to why people don't change their ways of living to improve hygiene

Reason		Number of APOs
1.	traditional beliefs	24
2.	'kanaka yet long ples' (b)	3
3.	'old stick to 'tumbuna' ways, young people change'	6
4.	people don't understand	12
5.	people 'bikhet' (bigheaded)	6
6.	people 'les', don't listen, don't try, (c)	5
7.	no law	6
8.	people forget	1
9.	APOs not teaching hygiene (properly)	13
10.	not enough health education	14
11.	older APO not trained in H.E.	2
12.	no 'village'	3
13.	don't see results	2
14.	need health committee	1
15.	local conditions too difficult	2
16.	local councillor's intervention	1
	(n = 98)	101 (a)

notes: (a) several orderlies gave more than one reason.
(b) 'kanaka yet long ples'. This is extremely derogatory in Tok Pisin and can only be translated in English as 'bush native' or a similar phrase.
(c) for an explanation of 'les', see notes to table 10.21.

The majority of aid post orderlies then, stress factors which relate to the people's inability, for whatever reason, to put into practice the 'education' they are being given. There is some considerable emphasis on 'traditional ways' as the major obstacle to change; the use of the term 'kanaka' by several orderlies is a dramatic example of this.

To some extent, this emphasis on problems within the people themselves may be seen as 'blaming the victim'; as such it may be seen to misconstrue the problem in various ways. Not least

it tends to divert attention from the social and economic conditions and forces which contribute to, and perpetuate, deleterious environmental conditions and focusses attention on the changing of individual attitudes. Suggesting this in no way detracts from the crucial importance of health education; as many orderlies pointed out health education work may be not at present be done either enthusiastically or efficiently. The orderlies themselves need better training and more resources and supervision for this task.

The importance of the orderlies' opinions is, it is argued, that they direct attention to the nature of health education. At the very least, they underline the need to see environmental health as a community issue and not an issue susceptible simply to a change in individual 'attitudes'. It is perhaps significant that only one orderly mentioned the need for a 'health committee', at the aid-post level, which would attempt to tackle these issues in the community on a participative basis.

Some further insight into the matter of health education may be gained by an examination of their answers to the question 'what needs to be done to combat malnutrition'?. Table 10.28 shows in detail the range of suggestions given and table 10.29 summarises these suggestions according to the type of action. Again, there is a clear bias towards perceptions and explanations of this problem which concentrate on the attitudes and ignorance of the people. Relatively little reference was made to the conditions which produce low levels of appropriate foodstuffs. Some lessons for the training and supervision of aid post orderlies might be

drawn from this. Rather than an emphasis on 'telling people what to do', there might be more attempts to generate community awareness of the problem and its possible causes. This would involve a good deal more than 'exhortary health education'. It should be noted that a number of orderlies did stress this approach to the problem as indeed did a number of respondents in the survey of community attitudes. The real question at issue is to what extent orderlies presently act as a resource for efforts of this sort; the evidence here suggests that they predominantly see themselves,and are seen by others, as sources of treatment.

Table 10.28. APO views on action needed to combat malnutrition.

Action needed		Number
1.	educate parents on feeding of children.	48
2.	family planning	12
3.	good gardens	12
4.	eat protein food	8
5.	APOs need more malnutrition training	6
6.	train more MCH Sisters	3
7.	interdepartmental co-operation	3
8.	involve community	3
9.	people should use MCH services	2
10.	'haus kai kai at health centre'(b)	1
11.	'spend money on food not beer'	1
12.	'health workers should show example'	1
	(n = 98)	100 (a)

notes: (a) several respondents gave more than one answer
(b) 'haus kai kai' - literally 'food house', usually used to mean 'cafe'. In this context reference is to the notion of selling food which is nutritionally sound with an educational purpose.

Table 10.29. APO views on action needed to combat malnutrition by type of action.

Type of action		Number
A.	Change attitudes/behaviour of people (1,2,9,11)	63
B	Improve effectiveness of health services (5,6,7,8,10,12)	17
C.	More/Better Food (3,4)	20
	(n = 98)	

notes: see table 10.28 for full list of actions.

Treatment of Diarrhoea in children

As noted earlier, child diarrhoea is a serious problem in the province and strenuous efforts have been made by the health department to make known the fact that dehydration is the major cause of morbidity and mortality. Thus there has been an emphasis on giving fluids, sugar/salt/water mixture or electrolyte solution in cases of diarrhoea. Aid post orderlies have received numerous instructions to do this and have been told not to treat cases of severe diarrhoea with drugs; in the past sulphadimidine in particular was used extensively in such cases and orderlies have been specifically instructed to refrain from such treatments. Cases where rehydration was seen to be insufficient should be referred. In all cases, of course, parents should be given advice regarding both the need for fluids and measures which could be taken to

avoid recurrence of the condition. At the request of the health department, orderlies were asked 'If a child is brought to you with diarrhoea what do you do?'. The question was open-ended, that is, no checklist was offered of possible responses to this problem. Essentially, the health department was concerned to establish some indication of how closely present practice in this matter, as reported by the orderlies themselves, matched the policy of the department.(12) Table 10.30. shows that of the 106 respondents, just over half mentioned the giving of fluids, a half mentioned either 'medicine' or 'sulphadimidine' specifically, a slightly larger proportion mentioned advice to parents and about a third 'referral'. Many orderlies, quite reasonably, gave several suggestions for action which would be taken; it must be emphasised that these results indicate what the orderlies thought should be done and not what is actually done.

Table 10.30. APO Statements of action taken in cases of child diarrhoea

Type of Action	Number of APOs	%
advise parents	57	53.8
sugar/salt water	41	38.7
'fluids'	18	17.0
'medicine'	35	33.0
sulphadimidine	18	17.0
referral	36	34.0

(n = 106)

(12) There was of course no question of individual orderlies being identified to the department when the results were made available.

Despite the very severe limitations on this data several aspects of these results may be seen as important. Despite specific instructions to the contrary over some considerable period, 18 of the group suggest that they would administer sulphadimidine. From interviews it is clear that perhaps a third of those suggesting 'medicine' would also be giving sulphadimidine.

Of the 53 orderlies mentioning sulphadimidine or 'medicine' only 27 also mentioned giving fluids of any kind, and only 25 suggested giving advice to parents. There is some indication therefore that those using drugs for treatment tended to be more restricted in range of actions they would take in response to this problem.

Although the numbers are very small, it is interesting to note that 44 per cent of those mentioning sulphadimidine also mention referral, compared with the 34 per cent of the whole group who do so. From interviews it would seem that those using drug treatments would generally refer patients to a greater extent than other, not only in cases of diarrhoea. It was anticipated that those continuing to use drugs, despite instructions not to do so, would be older aid post orderlies with more years of service. There was, however, no correlation between giving sulphadimidine, or 'medicine', and either age or length of service. This was somewhat surprising; the influence of changes in training in particular might have been expected to differentiate older and younger aid post orderlies. It may be suggested, but with very little evidence for such a suggestion, that a proportion of orderlies

regardless of age or training, are 'drug-oriented', that is that their inclination is towards treatment and more particularly towards treatment which involves the relatively straightforward application of specific medicines for specific conditions. Certainly several orderlies suggested that giving, or advising parents to give sugar/salt water in cases of diarrhoea was 'not really treatment'. In this regard it is important that patients themselves may share this view. Demands from patients for 'proper medicine' are common and this may certainly act to perpetuate the emphasis among certain orderlies on the administration of drugs as their primary role.(13)

From the answers given then, it is clear that, over the province as a whole, there is considerable variation in aid post orderly practice in relation to this particular major health problem. Many orderlies have not responded to instructions issued to them from the provincial health office, and there is further support for the case that supervision of aid post orderlies is deficient. The continuing use of drugs such as sulphadimidine is disturbing in itself but perhaps more so to the extent that it suggests an inability on the part of the provincial health authorities to implement their policies throughout the province.

Conditions of Employment

The achievement of a greatly improved system of primary health care has been seen to depend to a considerable extent on the work of aid post orderlies. It was felt important

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(13) These issues are discussed further in Chapter 11.

to seek some evidence regarding attitudes to conditions of employment, on the grounds that this might illuminate discussion of the kind of roles aid post orderlies might be expected to take. This may be of particular significance if emphasis is put on the concept of the 'community health worker', rather than on the orderly as being simply the bottom rung of a professional ladder. Time did not allow of more than a few questions on this aspect and the intention was to indicate possible aspects of interest rather than produce specific firm conclusions.

First, the aid post orderlies were asked whether they desired any changes in the conditions of their employment. Table 10.31 shows responses to this question; the first part of the table shows responses to items given on a checklist, the second 'written-in' responses. A large proportion, 61 per cent, checked all the items on the checklist, and there is evidence from the interviews that these responses are perhaps less reliable than those who, for example, checked everything <u>but</u> 'garden', (26 responses), as the latter group may be assumed to have considered each item whereas the former may have simply checked the whole list without real consideration.

At the time of the survey, the feelings of aid post orderlies regarding their conditions of employment were running very high.(14) Virtually all the orderlies questioned felt strongly about the basic conditions of their employment; pay was the

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(14) see Chapter 6 for details of changes in pay

Table 10.31. APO views on changes in employment conditions.

Proposed change		Number of APOs	%
A.	Checklist		
	more pay	41	38.7
	more training	41	38.7
	better house	38	35.8
	promotion	34	32.1
	better medicine	30	28.3
	better garden	6	5.7
	all the above	61	57.5
B.	'other'		
	transfer	14	
	retirement benefits	8	
	long service leave	7	
	camping allowance	5	
	'public service'	4	
	transport	4	
	family allowances	2	
	better Aid Post	2	
	water supply	2	
	hardship/remote allowance	2	
	boot allowance	1	
	better supervision	1	

(n = 106)

issue raised most often but housing and promotion were also frequently mentioned. In general these orderlies felt that they were poorly treated, in comparison with those employed in other sectors. Essentially, the demand was for 'public service' conditions of employment, enjoyed by teachers, policemen, agricultural extension workers and others. A number of orderlies expressed their sense of being 'neglected', 'forgotten' and 'ignored'. They argued that their work was important, difficult and sometimes unpleasant; they stressed the fact that they were often working in remote areas and were consequently isolated and deprived of the kind of life which could be led by those with whom they compared themselves. Here their comparisons were most often with those working in the larger administrative centres and small towns. The theme of 'being neglected' came through very strongly; the group felt that 'the health department doesn't care about aid post orderlies' and 'the government says we are important but treats us very badly'. The strength of feeling expressed here was really very marked; certainly during interviews but to a certain extent in 'written-in' responses to the questionnaire the orderlies were vociferous in their complaints.

As suggested earlier, many of their specific requests, as in the second part of table 10.31, were part of the demands for 'public service' conditions of employment. There can be no doubt that the majority of orderlies were demanding both improved pay and the numerous benefits which they saw as attaching to employment on public service terms. It is important to stress, however, that the sense of neglect and isolation they felt was important; they were not getting recognition for the efforts

they were making.

Of the written-in responses, the number wishing to have the right to transfer is perhaps important. Fourteen orderlies specifically mentioned this aspect of their conditions of employment. Assuming that effective community health work demands a degree of commitment to the community in which the orderly is working, questions were asked regarding the level of satisfaction with the present place of employment.

First of all, the orderlies were asked where they would like to work, as aid post orderlies, if they had the opportunity to move. As can be seen from table 10.32 a large majority would prefer to be working elsewhere.

Table 10.32. Preferred place of employment

Location	Number of APOs	%
'another place'	68	66.7
'where working now'	34	33.3
	n = 102	100.0

They were further asked why they wanted to work elsewhere. Some, who had not expressed a desire to move, responded to this question by giving reasons for their desire to stay where they were. Tables 10.33 and 10.34 show these responses.

Table 10.33. Reasons for wanting to work elsewhere

Reason	Number of APOs
learn about another place	17
tired of staying in one place	16
help my own people	7
facilities	6
better working conditions	5
improve knowledge(for work)	4
access to land in own place	3
experience of different problems	2
where bigger population	1
'people here don't help with work'	1
n =	62

Table 10.34. Reasons for wanting to stay where working at time of survey

Reason	Number of APOs
help my people	5
'ples tru bilong mi'('this is my home')	2
'trouble' elsewhere	1
'materialism' elsewhere	1
too old to move	1
can't afford to move	1
n =	11

More than half of these aid post orderlies wanted to work elsewhere. Of the 62 orderlies giving reasons for this desire, 52 wanted to move away from their own 'home', communities. Of course, this is in response to a question which asked for their wishes if the opportunity for such a move existed, and cannot be taken as an indication of likely action on the part of these orderlies. Only a very small minority gave positive reasons for wanting to remain in or move to, their home communities. There were some negative reasons offered by those wishing to move but the majority would move because of the perceived attractions of other places. A number of orderlies made reference to working in towns, partly because they felt they could improve their skills and employment status, but mostly because they felt that 'life is better' in the towns or in the coastal provinces. In interviews particularly, it was clear that very many orderlies saw themselves, as noted earlier, as being comparable to policemen, extension workers or teachers. These groups have considerable geographical mobility whereas these orderlies do not. They felt strongly that they were 'kept in one place' and 'not allowed to have a better life in other places'. It must be emphasised that among the minority who wished to stay where they were, or move within the province to their home community, there were a number who expressed a high degree of motivation for working to improve the health of the people. Furthermore, those wishing to move very often stated that they were concerned to 'help people', 'help the nation', and 'work to improve the country'. The essential difference between these groups was that the majority

of orderlies wished to enjoy the benefits of the skilled wage employment they had trained for, as well as wishing to 'do good'. Whatever the reasons for the existence of these attitudes, it was clear that there was some doubt as to the degree of commitment these orderlies have to working in and with their own communities.

Similar questions to those asked on place of employment were asked in relation to type of employment. That is, if there was the opportunity, would these orderlies change their employment, and why. Here again, the issue was to what extent was there a commitment to community health work. As can be seen in table 10.35, more than three quarters of orderlies said that they would change their employment, that is cease to be aid post orderlies, if they were able to do so.

Table 10.35. APOs who would change type of employment if able to do so.

	Number	%
would not change	24	22.6
would change	82	77.4
n =	106	100.0

Among those not wanting to change only five gave positive reasons for wanting to remain as aid post orderlies; they 'like the job', 'like working with own people' and 'think it is important work'. The remainder of this group offered negative

reasons; they were 'too old to change', 'it is too difficult to change', or 'there are no other jobs in this place'.

Those who would change their employment, the majority, offered a number of reasons for wanting to do so but most of these were related to what they saw as the currently poor conditions of employment for aid post orderlies. Table 10.36 summarises these reasons; slightly over half were concerned primarily with pay and conditions, the remainder were critical of the job itself and its position in the hierarchy of health service employment.

Table 10.36 Reasons for wanting to change employment

Reason	Number of APOs
APO conditions of work no good	20
pay	13
'tired of' APO work	12
no promotion as APO	8
would like more worth while job	6
	n = 59

A consistent theme in responses here is that 'the government is not interested in aid post orderlies'. This was noted earlier in relation to specific conditions of service. A very clear impression was gained from the responses as a whole of group of workers who were 'fed-up' with their conditions of

service, their levels of pay, their opportunities for mobility and promotion and to some extent with aid post work iiself. In other words morale was very low indeed at the time of the survey.

These orderlies were not, however, 'fed-up' with health work as such; nearly all those who expressed a desire to change wanted employment within the health sector, as shown by table 10.37.

Table 10.37 Type of employment sought by orderlies who would seek to change employment.

Type of Employment	Number of APOs	%
Within PHD	24	29.3
'Specialist' jobs in PHD	24	29.3
Hospital	14	17.1
Health Education	10	12.2
Jobs outside PHD	10	12.2
	n = 82	100.1

note: PHD - Provincial Health Department

Of the 24 responses suggesting different but unspecified jobs within the provincial health department, 1 mentioned promotion directly. From interview responses, however, it was clear that most of these responses indicate a desire, not surprising, for a 'better job' within the health department, but

no particular preference in terms of type.

Twenty four responses identified particular 'specialist' jobs within the health department as desirable - malaria, leprosy, tuberculosis, venereal disease, family planning and dental were all mentioned in approximately equal numbers. All these positions would represent promotion for an aid post orderly.

The majority of these orderlies then, while not perhaps wishing to remain at aid posts, did wish to pursue their careers by promotion within the health department. The positions seen as desirable had higher pay, more status and were largely located at larger health centres and hospitals. For this group, aspirations lay in the direction of higher levels in the medical hierarchy and away from the remoter rural areas.

Of the small number mentioning jobs outside the health department, most referred to occupations for which they were already trained, carpenter, agricultural extension worker and so on. Of this group, 5 said that, if they were to change employment, they would remain in their home community.

Aid Post Orderly Survey - Summary of Findings

1. More than half of the orderlies were aged 20-29, with most of the rest being aged 30-39. Nearly all were married and virtually all of married orderlies had children. The current group of orderlies is therefore likely to remain in post for some considerable time to come.

2. Only 6.7 per cent were from outside the province but 37.1 per cent of those from within the province were working outside their own local areas of origin.

3. Fluency in Tok Pisin was high, while fluency in English, the medium of official communication was generally low. Communication within the health department appeared to be obstructed by the continued use of English. Although most orderlies claimed fluency in local languages, communication between orderlies and local people remains problematic.

4. Nearly all orderlies had finished formal schooling at the primary level, but there is evidence that educational levels at recruitment have begun to rise in recent years.

5. Over half of these orderlies were trained at the government training school at Mount Ambra. Nearly all the rest had been trained at hospitals in the highlands region. Threequarters of the group had some in-service training.

6. Forty per cent had been trained in other occupational skills, many of which were relevant to primary health care. This was less common among younger, more recent recruits.

7. The mean length of service for this group was almost 12 years. Their attitudes and methods of working were thus well-established.

8. Well over half reported difficulty with the record-keeping aspects of their work, with older orderlies finding more difficulty than their younger colleagues. The problem appeared to be related more to the perceived futility of the task than to low levels of ability.

9. Supplies, particularly drugs, were seen to be a major source of concern. Shortages had severe effects on both aid post provision and the morale of orderlies.

10. There was some evidence that the orderlies' perception of 'sickness' reflected a curative and 'drug-based' orientation.

11. Statements on family planning supplies exposed serious confusion within the province regarding the current role of orderlies in this field. The fact that orderlies' involvement in family planning was more extensive than the health department believed, seemed to be attributable to a series of policy changes in recent years.

12. There is little evidence that effective work on malnutrition is presently being done by the majority of orderlies.

13. Despite an awareness of faults in the aid post system itself, explanations of non-utilisation emphasised negative characteristics of the people themselves. Evidence here suggests possibly serious problems with the relationship between orderlies and the community.

14. In relation to environmental health and hygiene, there was considerable frustration at the general lack of improvement perceived. Blame was primarily put on the

people themselves and reliance largely placed on more effective health education. For both environmental health and malnutrition the emphasis was on 'exhortary education' with some evidence of a considerably authoritarian approach.

15. Evidence as to preferred treatment for child diarrhoea suggests that inappropriate treatments continue to be given, despite health department instructions. There is some further support for the conclusion that orderlies have a drug-centred, curative orientation.

16. Criticism of current conditions of employment was virtually universal; morale was extremely low and orderlies felt 'neglected' by both government and the health department. Demands for public service conditions suggest a career orientation which may be contrary to the concept of a 'community' health worker.

17. Most orderlies would work elsewhere if they were able to do so, and the desire to leave the remoter rural areas was marked.

18. Threequarters would change their employment if they could but the majority would wish to remain in the health sector, but not as aid post orderlies.

The relevance of these findings to the development of primary health care in the Southern Highlands and the role of aid post orderlies in general is discussed in the next chapter.

References - Chapter 10

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CHAPTER 11

CONCLUSIONS

This chapter draws together previous discussion of the development of basic health services in Papua New Guinea, and in particular in the Southern Highlands Province. In doing so, attention will be on three major themes. First, the constraints imposed by patterns of development and underdevelopment, both nationally and provincially. Second, the development of health policies and programmes. Third, some of the problems, in the Southern Highlands, of a primary health care approach reliant on the work of aid post orderlies; this will draw heavily on the survey results discussed earlier.(1)

It will be argued that any explanation of basic health services, which for Papua New Guinea means rural health, must take account of forces operating at a variety of levels, both inside and outside the health system. Given the state of knowledge, and the pace of social change, definite conclusions are difficult and predictions rash in the extreme. It is possible, however, to indicate the major factors within the explanatory framework adopted in this study.

Development and Underdevelopment.

Papua New Guinea has only relatively recently achieved political

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(1) see Chapter 10.

independence; its colonial history is still recent, the present impact of that historical experience consequently being extremely powerful. Within the country, there is enormous variation in patterns of economic activity and related social formations. The single most important feature of the contemporary Papua New Guinean economy is the penetration of the cash economy. The impact of export-oriented production on pre-existing economies and social systems is profound. There can be little doubt that contemporary Papua New Guinea is in a period of rapid underdevelopment. The principle features of that underdevelopment are those which have been identified as characteristic of neo-colonialism in most parts of the world. (Amarshi,et.al., 1979; Valentine and Valentine,1979) In particular, three trends may be identified. First, the entrenchment and extension of dependency; as was clear from earlier discussion, the development strategy adopted has allowed greater penetration of foreign capital and deliberately oriented the economy to primary export production. Closely related to this, imports, even of food, are at a very high level; outside the subsistence sector few of the goods consumed are produced within the country.

Amarshi argues that the exchange economy established in Papua New Guinea is "almost wholly externally-oriented"(1979 : pp.58-59) and concludes his analysis of the neo-colonial economy by arguing that:

> "the economy of Papua New Guinea,notwithstanding the wishful thinking of many colonial apologists and politicians, exhibits the same structures of underdevelopment as do other countries of the Third World, particularly most of Black Africa". (1979:p.58)

The importance of the process of underdevelopment cannot be over emphasised; the particular form of money economy which now dominates Papua New Guinea not only influences profoundly the contemporary patterns of social formation but will dramatically restrict the range of future options. The majority of Papua New Guineans are in the rural areas; of those, few are now untouched by the money economy although very many remain primarily within the subsistence economy. The contrast between the 'modern' economy and the pre-existing subsistence economy and its related social systems is perhaps the most dramatic feature of contemporary Papua New Guinea. Many of those who argue, within Papua New Guinea, for an alternative development path to that now being followed, stress the values of pre-existing systems and the possibilities of expressing those values in a national development strategy which rejects the domination of the capitalist economy and its attendant social forms. John Waiko has eloquently expressed this position:

> "Subsistence culture is a total way of life and itself provides an ideology for the subsistence population. What is lacking is leadership: the kind of leadership that can decide now whether the society, or the majority of its members, must live within a cash economy based on intensive capital from the outside, or whether it can retain and revitalise the subsistence economy based on primary resources. The latter seems the best alternative for Papua New Guinea, though not for its elite, nor for the international corporations. We must look again at the framework for self-reliance set up by the Government through its eight aims, and with its help consolidate the base for subsistence independence".
>
> (Waiko,1977: p.427)

The second trend, characteristic of post-colonial underdevelopment, is that of class formation. Pre-existing social formations were not undifferentiated, as noted earlier.(2) Social classes, however, only came with colonialism and the money economy. In Papua New Guinea, class formation has been recent and is, as yet, relatively unadvanced. Two features predominate however, and are of major significance; the growth of a largely urban, predominantly public service based wage and salary elite and the beginnings of rural class formation. The latter is, so far, not widespread but considerable evidence exists of both the emergence of a group of rural entrepreneurs and the creation of landless wage labourers in rural areas, particularly associated with plantation and estate production. (Valentine and Valentine,1979.) These features have been seen to be crucial in very many other post-colonial societies (Gutkind and Wallerstein,1976; Gutkind and Waterman,1977) However, in Papua New Guinea the process is not far advanced; as Valentine and Valentine note:

> "In much of this country classes of Western type are being imposed on top of local social relations without yet destroying traditional systems".
>
> (1979 : p.97)

In the rural areas then, the present situation is complex, and changing very rapidly;the present accommodation between the new and the old social forms may not last very much longer.

In many rural areas, the beginnings of a class system means

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(2) see Chapters 3 and 4.

growing inequality; nonetheless the emergence of urban-based wage employment remains the fundamental source of social inequality. Again typical of underdevelopment, the power of the urban areas within Papua New Guinea is very great; the towns now dominate the political economy. No discussion of contemporary Papua New Guinea can ignore the significance of relations between urban and rural areas. It is not simply that resources of all kinds are unequally distributed in favour of the urban areas, but that the power which determines the pattern of distribution lies in the urban areas.

This is not of course to suggest that urban populations are homogeneous. Social relations within urban areas are complex and relations between specific urban populations and the rural areas are equally so. (Rew,1970; Morauta,1974; Oram,1976) Clearly the most important feature of the contemporary Papua New Guinean social system is the urban elite. As noted earlier, this group is almost entirely located within the public service. As heirs to the colonial administration this administrative class has enormous power and concomitant privilege. (Young,1975)

Good characterises this group as an 'educated petty bourgeosie' and argues that:

> "The tacit alliance between the rich peasantry, educated petty bourgeoisie and metropolitan capitalist bourgeoisie is perhaps the most outstanding social characteristic of Papua New Guinea in the 1970s".
>
> (Good, 1979 : p.159)

The third major feature closely related to the nature of the administrative elite, is the dominance of the state. Again, the overwhelming importance of the state in Papua New Guinea may be seen as typical of underdeveloped countries. (Golbourne, 1979) The importance of the state in Papua New Guinea was discussed earlier in relation to the development of the economy.(3) Both in structure and function, the post-colonial state in Papua New Guinea may be seen to exhibit the characteristics found by others in newly-independent countries elsewhere.

> "The state is the principal employer of labour, the chief dispenser of jobs,benefits, patronage, contracts, foreign exchange and license to trade. Manipulation of the offices and resources of the state by the power elite proved the shortest cut to wealth. It was political power that made possible the creation of economic power,not the other way about".
>
> .....as in colonial days, bureaucratic method dominated over the political..... On the whole government continued to function much as it had done during the colonial period, as a centralised and hierarchical system of administration.
>
> (First, 1970 : 101,120)

In Papua New Guinea, the absence of ideologically-based political parries, indeed the absence of any nationally organised political parties,gives the administration a

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(3) see Chapter 4.

particularly dominant position. (Amarshi,et.al.,1979)

Papua New Guinea may thus be seen to have many of the characteristics of an underdeveloped post-colonial society. The cash economy is becoming increasingly powerful and nationally the patterns of inequality, of resources and power, typical of underdevelopment are establishing themselves rapidly. These, and emergent class formation, may be seen in contrast to pre-existing, subsistence-based economic and social forms. A number of other studies have stressed the importance of the political economy in shaping the health services which exist within it. (Doyal and Pennell,1979)

For Papua New Guinea, it has been argued in this study that both the nature of the health system inherited from the colonial administration and its development since independence have been to a considerable degree determined by the dependent political economy.

For the Southern Highlands Province, any discussion of basic health services must similarly be concerned with the nature of development and underdevelopment. Earlier chapters have outlined the current situation in the province and the quite dramatic changes which will take place as a result of the World Bank funded Southern Highlands Project.(4)

The provincial development strategy is firmly rooted in the concept of 'modernisation', and consequently attempts to 'monetise'

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(4) see Chapters 7 and 9

the provincial economy as rapidly as possible. This is being done through the introduction of cash crops for export ; whatever the specific forms of production, estate or smallholder, the effect will be that existing economic and social systems must be displaced. Despite acknowledgement of the inadequacy of cash alone as the objective of provincial development it is clear that very little has been done, or will be done within the project, to develop alternatives to any significant extent. In a review of large-scale development projects elsewhere in Papua New Guinea, Valentine and Valentine(1979) note the effects of such 'development' on the majority of rural people:

> "So what we find is a large system of economic and political relations which works on many levels. It works internationally, at the national center, in the provincial capitals,in every district and on down to the local settlement or village level. Throughout this system the main trend is towards greater inequality. This is perhaps the most easy to see at the local level where our case histories are located. Here the village people often lose their land and other resources and receive little or nothing lastingly useful in return".
>
> (Valentine and Valentine, 1979 : p.96)

Reviewing the experience of a rubber-based development project in the Sepik region, Cox concludes that:

> "The tendency to overlook both basic needs and the fundamental issues of quality of life because of misplaced emphasis on economic development, seems generally to be acknowledged as a widespread problem in the rural development projects of developing countries".
>
> (Cox,1979 : p.30)

The Southern Highlands project raises major questions of the appropriateness of large-scale development projects based on cash - cropping. Although presented as an 'integrated development project' there is already evidence that economic activities, and large-scale production in particular are by far the major focus of attention.

In general terms therefore, the Southern Highlands demonstrates the dilemmas of development and underdevelopment ; in that province the deliberate transformation to a'modern cash economy' is under way. For the province as a whole this raises profound issues of relations with the national political economy. The most important of these is the extent to which the economic gains from economic transformation will go, not to the people of the province, but to those, nationally and internationally, with economic and political power. The experience of many other countries would suggest that this is not just possible, but likely. (Shanin, 1976; Long, 1977; Lipton,1977). Furthermore, to the extent that resources remain within the province, those resources may be distributed unevenly. There is already inequality between districts and evidence from elsewhere in Papua New Guinea would suggest that rapid cash-crop development will be accompanied by growing internal inequality and rural class formation. (Good,1979)

Specifically in terms of health, the developmental trends in Papua New Guinea in general, and the Southern Highlands in particular may be seen to have similar results to those noted in other developing countries. (Frankenberg and Leeson,1973; Johnson,1975; Benyoussef and Christian,1977, Navarro,1974; Tursten,1977). Among the most important of these are the

disruption of existing agriculture, with consequent effects on nutrition ; the substitution of imported foodstuffs bought for cash, again with deleterious effects on nutrition; a rise in alcohol and tobacco consumption ; more population movement, particularly to urban areas, associated with an increase in the transmission of infectious diseases. (World Health Organisation,1973).

Finally, within the province, it was noted that although health services are unequally distributed the range of inequality has not been wide; essentially, the whole province has been poorly served.(5) With differential rates of economic development within the province, already existing inequalities are likely to be widened.

A major theme of this study, therefore, has been that patterns of development and underdevelopment are crucial to an understanding of the health services which exist and the forces which affect thier future growth. Similar views are found in studies done elsewhere. Van Etten, in a study of rural health in Tanzania suggested that:

> ".....we have demonstrated the value of analysing problems of rural health within the broader context of the historical and sociopolitical structures that have determined them".
>
> (Van Etten, 1976 : p.145)

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(5) See Chapter 9

A more recent study of basic health services in rural Ghana, although not discussing in detail the nature of the Ghanain political economy, points to its importance:

> "Much of this research concentrates on the most 'micro' levels of explanation....But it is important to set this level of explanation in the wider context of the overall forces operating throughout the society.
>
> As we explored problems at the district level we were continuously led back 'up' the system, to decisions made by people in Accra and to more 'macro' levels of explanation. We have not, in our work, been able to devote more than passing attention to these macro-factors, and we see this as a regrettable limitation to the contribution we may be able to make to the understanding(and overcoming) of these problems".
>
> (IDS Health Group, 1978 : Vol.1.,p.40)

Similarly, this study has been unable to do more than indicate the major features of the Papua New Guinean political economy, and its impact both at national level and within the Southern Highlands Province.

Health Policies and Programmes

Examination of health problems and health policies in developing countries has shown that the relatively recent emergence of the 'primary health care approach' was to a large extent a response to the failure of health systems introduced by colonial administrations.(6) As Leeson(1974) argues, it is important to analyse the paradoxes that exist between the health needs of the majority of the populations of developing

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(6) See Chapter 2

countries and the health systems which have been developed in those countries. Colonial health policies have been seen to have been determined by the needs of colonialism itself ; in uneven spatial distribution, hospital - orientation and increasing reliance on high-cost imported technology health services under colonialism reflected the imperatives of economic penetration and consolidation. With political independence, the nature of neo - colonialism has in general produced,until recently, a continuation of previous policies and programmes. Those few countries which have introduced radically different health systems have done so as part of an overall attempt at social transformation(Aziz,1978; Gish,1979). The 'under-development of health' has received considerable attention as a powerful explanatory tool. (Frankenberg,1974; Heller and Elliott,1977; Doyal and Pennell,1979).

'Primary health care', has, since the early 1970s, gained widespread support as an approach to the health needs of the mass of people in developing countries. Its emergence has been seen to be closely related to growing disquiet with concepts of development which place economic criteria of success above all others. By the end of the 1970s concern with 'basic needs' and policies which would satisfy those needs had come to dominate the 'development debate'. (Cole and Lucas,1977)

In Papua New Guinea, the history of health provision illustrates the relationship between the political economy and the nature of health services.(7) There were some initial

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(7) See Chapter 5

differences between the British and German administrations but for the greater part of the country's colonial history,under Australian administration, a clear general pattern emerges. Prior to the second world war there was very little provision for the mass of the population ; services and facilities were concentrated in areas of European settlement and economic activity. The missions were, and remained, important as providers of health services in rural areas. It was not until after the war that attempts were made to provide organised services to the mass of people in rural areas, with the establishment of the aid post system.(8) However, this service was poorly organised and largely unsupported. Essentially, community - level services relied on local community support and national expenditure was primarily devoted to urban, hospital - based services.

By the mid - 1960s, when pressure for independence was mounting, the major concern of national health policy was with reducing costs. Training of aid post orderlies was abandoned and, as national concern focussed on economic growth and efficiency, the trend to curative, urban services continued.

It was not until 1974 that national health policies were significantly altered. The development strategy adopted with independence stressed a more equal distribution of resources and concern with rural areas. In addition, there was increasing criticism of existing patterns of health provision, as in many other parts of the developing world. The failure of hospital - based curative medicine alone to meet the health needs of the

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(8) See Chapter 6

population was acknowledged and the National Health Plan emphasised basic health services and prevention, arguing that previous trends would be reversed by positive budgetary control.

From analysis of health expenditure during the plan period, however, it is clear that the earlier trends were not reversed. Urban and curative services continued to dominate, taking greater shares of national health expenditure rather than less. Towards the end of the 1970s the adoption of more positive planning measures, and in particular the National Public Expenditure Plan, may have begun to shift actual programmes more in the direction of stated policy objectives, but the evidence here is inconclusive.

The problems of implementing national health policy are compounded by decentralisation; there is some evidence that the severe provincial inequalities in resource distribution, which were largely a result of extremely uneven economic development, may be ossified rather than corrected by the imposition of the new system of administration.

Again in line with international trends, the available evidence suggests that the new Papua New Guinea health plan, still in preparation, will emphasise primary health care in rural areas. This will place the aid post orderly even more firmly as the focus of health provision for the majority of the population.

The historical analysis of health services in Papua New

Guinea shows both the dominance of hospital - oriented western medicine and extreme inequality in the distribution of health resources. This was true of both colonial and post - colonial Papua New Guinea. The underdevelopment of basic health services can be seen, as van Etten argues for Tanzania:

> ".....as a function of the overall social and economic policy of the colonial government".
>
> (van Etten, 1976 : p.148)

The unequal distribution of health resources in Papua New Guinea has been noted elsewhere. (Segall,1972; de Kadt,1973; Gish, 1975; Segall, 1977; Abel-Smith and Leiserson,1978; World Bank,1980). In Ghana, for example, the 1975/76 - 1979/80 development plan states that:

> ".....the pattern of resource allocation has tended to favour the upper end of the institutional hierarchy thereby increasing the health resources that have been available to the urban few and denying resources to the rural people who form the majority of our population".
>
> (quoted in IDS Health Group,1978: Vol.1.p.35)

If what has been described as the 'rhetoric - implementation gap' (Mburu,1979) between stated health policy and actual practice is to be closed the present unequal distribution of health resources must be changed. As van Etten argues:

> "....one of the main obstacles to an efficient health care delivery system in

> developing countries is not so much a general lack of health institutions and staff, but rather the inegalitarian distribution of the financial and human rescources between the hospital and the primary care sector of health services".
>
> (van Etten, 1976 : p.151)

The ability of the administration to significantly alter the distribution of resources is severely limited. As noted in discussion of the National Public Expenditure Plan, the proportion of each years budget not already determined by past decisions and existing services, is extremely small.(9) The Ghana study makes the same point, and further argues, as this study has done, that maldistribution will persist because:

> ".....the bias in the distribution of health services is similar to the bias in other goods and services. Power resides in Accra, and other urban centres and resources are concentrated there. Furthermore, the kind of service that exists in the urban area is predominantly hospital - based and curative in nature, that is, required by people whose nutritional and sanitation requirements are already satisfied. It is this minority who dominate the society and are also pressing for 'standards to be improved in the hospitals, even if the consequent expenditure is at the expense of others who as yet do not have basic health care".
>
> (IDS Health Group, 1978 : Vol.1,p.37)

Thus, an examination of health policies and programmes in Papua New Guinea has found similar patterns to those identified elsewhere. Both in colonial and post-colonial Papua New Guinea underdevelopment of health has reflected underdevelopment of the

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(9) See Chapter 4

economy and society. However, although the health system is to a very large degree a product of the political economy it has its own dynamic. There are forces within the country, the society and the health system itself which have produced, and will continue to produce, something which is uniquely the 'Papua New Guinean health system'. An understanding of the social, political and economic context is crucial; but the context does not determine the exact nature of the health system. It sets limits to what is possible and presents innumerable obstacles, but there are choices within it. Perhaps the major dilemma of basic health service development is the search for real progress in a context which is fundamentally hostile to the basic principles on which such progress must be based.

The Ghana study acknowledges this in discussion of the difficulties of relocating resources:

> ".....resources for the expansion of the health care services to those tens of thousands of people currently denied access may still be found in the short term, and within the current distribution of resources, because these resources are both under utilised and used inefficiently. It is for this reason that this study concentrates on the rural areas, where the mass of people live and where the changes will have to take place. It is also for this reason that new ways of doing things are sought, in order to break out of the conventional constraints of ideology and resources to the provision of health care to mass of people".
>
> (IDS Health Group,1978;Vol.1,p.39)

The present study is based on a similar position; while

recognising the power of the forces ranged against dramatic progress there is a conviction that basic health services for the mass of people can be improved. There is evidence that a stronger commitment to basic services will emerge in the new health plan ; the failure of planning to date has been recognised and efforts are being made to plan more effectively; decentralisation and an emphasis on community involvement at least allows the possibility of greater control by the mass of people.

The fundamental question which remains is how much can be achieved within health without major change in the society at large. A number of commentators have argued that very little of any value is possible without a thorough going 'politicisation' of both the health sector and the society in which it operates. (Sidel and Sidel,1974; New,1974; Maru,1977) There can be no doubt that the most dramatic results have been achieved in countries where this has occurred. (Rifkin and Kaplinsky,1973; Djukanovic and Mach,1975; Newell,1975; Chabot,1976; McMichael,1976) Gish, although convinced of the benefits of rational planning (1977), has acknowledged the constraints imposed by the context in which health systems must operate. (1979) Others have argued that a health system which itself expresses values of egalitarianism and real participation may provide some part of the basis for social organisation and social change in the society of which it is a part. (Sidel and Sidel,1977)

The next section deals with aid post orderlies in the

Southern Highlands Province; this group of workers is crucial to the development of basic health services in that province. As the Ghana study, quoted above, argued, it is in the rural areas where changes will have to take place.

Aid Post Orderlies and Primary Health Care in the Southern Highlands Province.

The history of the aid post service in Papua New Guinea and the role of 'low level manpower' in the provision of basic health services have been discussed.(10) The Southern Highlands, which has poor health conditions relative to the rest of Papua New Guinea, has been seen to place considerable emphasis on these workers for the development of health services in the province.(11) Although, by mid-1979 a provincial health plan had not been produced, indications were that provincial health policy would follow the 'primary health care' approach. With decentralisation of responsibility for rural health to the provincial level, the Southern Highlands, which has had provincial government since 1978, is in a position to determine, within the limits of available resources, the pattern of health provision for its people. With all but a small minority of aid post orderlies being employed by the provincial government, the administrative basis for effective development of the aid post system exists. Within the province, the arguments for concentration on this level of provision are strong; present patterns of resource distribution and utilisation of facilities suggest that the basic health care needs of the people could be met more

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(10) See Chapter 6

(11) See Chapters 8 and 9

effectively by development of the aid posts. This would involve some changes in the present spatial distribution of facilities, to the extent that these affect access. Of more fundamental significance, however, are problems related to the actual operation of aid posts and the work of aid post orderlies themselves.

The survey of aid post orderlies in the province conducted early in 1978, showed that severe problems were perceived by these orderlies, in terms of their position at the periphery of the health service. Studies elsewhere have noted similar problems. (Fendall,1972; Raikes,1973; Canedo,1975; van Etten and Raikes,1975; van Etten,1976; Johnson,1976; Ndlovu,1976;) Two main groups of problems may be identified; first the relative neglect of these peripheral units in terms of supplies, supervision and general support. In the Southern Highlands, transportation and communication difficulties were compounded by what many of the orderlies themselves saw as lack of concern on the part of the provincial health department. Lack of supplies, and inadequate transportation were similarly found to be major problems in the districts studied in Ghana by the IDS Health Group. (1978)

Among the Southern Highlands orderlies, record - keeping was seen as a difficult task but it was concluded that this was related more to the perceived futility of the task than to low levels of skill. Problems related to compilation of similar statistical records were found in the Ghana study. In one instance it was noted that the monthly return based on daily attendance registers was,

> "...not used by anyone at the peripheral health system level, or, it seems by the Ministry, and it is difficult to see any purpose in this register".
>
> (IDS Health Group, 1978: Vol.1,p.179)

The need for improvement in the organisation, administration and supervision of aid posts was clear and confirms similar findings elsewhere which suggest that peripheral health facilities tend to be neglected by health administrations oriented to hospital and health centre provision. From a detailed study of mobility and rural health care, Gish and Walker concluded that improved transportation should be used to provide better support for static rural health facilities.(1977)

In terms of the overall success of the rural primary health care effort this study would concur with the conclusions of the Ghana study:

> "More transport, vaccines and supervision would undoubtedly make the existing services function more effectively, but these do <u>not</u> appear to be the most crucial determinants of effective performance of the primary health care system.....the main constraints to the effective operation of primary health care services are to be found not in the health units themselves, but at the district level and in the policies that have hitherto been pursued by the Ministry of Health".
>
> (IDS Health Group,1978 : p.213)

There is, as noted earlier, evidence that district level administration is being improved and policies, both nationally and provincially, will be directed more firmly towards primary care. Even to the extent that this is so, the evidence of this study would suggest that a major problematic in the

implementation of primary health care is the group of workers most directly concerned, the aid post orderlies.

Two groups of issues are important; first, those concerned with the aid post orderly in the context of the health service and second, those related to the aid post orderly in the community.

Although national policy gives a wide range of health tasks to the aid post orderlies, in practice their work is largely concerned with treatment at the aid post itself. Before discussing some of the problems involved in extending their role, their effectiveness in the limited treatment role may be considered.

It was found that in certain aspects of their work, for example the treatment of child diarrhoea, orderlies were using inappropriate methods. It was not possible, within the limits of the research, to come to firm conclusions regarding the overall efficiency of orderlies but there were some indications of poor levels of performance. Several factors seem important here: basic training, in - service training and communication difficulties. Most of these orderlies had been trained at the government aid post orderly training schools, a number on the special course mounted for the Southern Highlands in the late 1960's, but many others had been trained in hospitals. Relatively few had received training on the new courses adopted in the early 1970's. The quality of the basic training most orderlies had undergone must, given the history of aid post training in Papua New Guinea, be problematic.

Although most had received some in - service training this has been acknowledged to be inadequate and thus the knowledge and skills possessed by many orderlies must be seen as a factor affecting performance. It is interesting to note that in the Ghana study it was found that no health workers were using oral rehydration for the treatment of child diarrhoea. (IDS Health Group,1978: Vol.1,p.191) In the Southern Highlands, the fact that many were failing to do so was recognised as a serious problem ; perhaps the fact that a considerable number were doing so is a tribute to the provincial health department and the orderlies in the province.

Communication problems may be seen as important in at least two ways. First, and closely related to the issue of knowledge up - dating referred to earlier, it was clear that although the great majority of health department communications with orderlies were in English, the orderlies themselves were generally fluent in Tok Pisin rather than English. It would appear from this study that more effective communication within the health division of the Southern Highlands would be achieved by the adoption of Tok Pisin. However, the second set of communication problems, between orderlies and the people they serve, is more complex. Although Tok Pisin is quite widely understood in the province a large proportion of the rural population still use local languages. At present, it is quite clearly the case that for the communication necessary for health care, orderlies should be fluent in the local language. Only a very small number of orderlies were from outside the province, but more than a third were working outside their own local areas of origin; although most claimed fluency in the local languages there must be some doubt as to the degree of effectiveness

communication between orderlies and the people.

Furthermore, if an orderly is working in an area other than his own, problems may arise in terms of his social relations within the community. Lewis discusses the case of an orderly in the Sepik region who, despite speaking the local language, encountered serious difficulties in conflicts with others because he did not have the support of a kin group which an orderly from the particular area would have had. (Lewis,1976)

Even an orderly working in his own area may find barriers to his work; one of these is frequently his age. Nelson, discussing the work of an aid post orderly in the Ialibu area in 1968, refers to the 'doctorboy's dilemma' which resulted from the ambiguous social position of a young man with some authority from his employment status but little or no authority in the traditional system of the community in which he was working. (Nelson, 1971 : pp. 469-476)

Despite these problems, it must be concluded that in general these orderlies provide treatment effectively and efficiently to those seeking their help. Better training and better continuing support would undoubtedly improve their performance.

This, however, raises a major dilemma; the conflict between the orientation of this group of health workers and the more comprehensive community health role expected of them. Not just from their training, but from the nature of the health system of which they are a part, these orderlies were oriented towards a drug - based treatment model of health care. Furthermore, it was apparent

that many see their personal progress in terms of movement up the clinical hierarchy. Thus, their stated desires to move away from the rural areas, usually to the towns, to move away from the aid posts to the health centres and hospitals, and for higher salaries and 'public services' employment conditions can be seen as a response to the kind of health system in which they work. The value - system which places clinical work, and hospitals, at the top of the medical hierarchy must be seen as a fundamental part of western medical systems introduced by colonial administrations and perpetuated ever since. The orientation of orderlies found in this study has been noted elsewhere : in Zambia (Jayaraman,1970), Zaire (de Craemer and Fox, 1968), Tanzania (van Etten,1976) and Ghana. (IDS Health Group,1978)

As van Etten argues, to the extent that the health system as a whole reinforces this orientation there will be considerable barriers to community-level health:

> ".....the continuation of the dominant value system underlying the hospital oriented structure of the health service and also of the hierarchy of health workers that he developed within this structure, appears to be incompatible with the present policy towards basic rural health and preventive work".
>
> (van Etten, 1976 : p.122)

Although orderlies were oriented to the hierarchy above them, and away from the areas in which they work, in practice their chances of moving up that hierarchy were slight. Indeed, frustration with the lack of promotion opportunities and the difficulties of transfer were strong. The result, powerfully

expressed by these orderlies, was low morale. At the time of the survey, very many orderlies expressed feelings of 'neglect', of 'being forgotten' and that although they had been told their work was important, the health department, and the country at large, did 'not care about' them.

This parallels the findings of the Ghana study:

> "The built-in dead end of the careers of the auxiliary health cadres..... has a seriously demoralising effect and results in low motivation and poor performance. Although in theory they can progress by acquiring GCE qualifications in practice this is almost impossible to achieve in the rural situation".
>
> (IDS Health Group, 1978 : Vol.1,p.197)

The recent dramatic improvement in aid post orderly salaries and conditions of service, together with the introduction of promotion grades at aid post level will undoubtedly have reduced much of the frustration found in 1978.(12) It will not, however, solve the problem. The expectations of the newer, more highly educated aid post orderlies are greater than those of their older colleagues. Furthermore, despite recent improvements, orderlies remain at the bottom of the medical hierarchy not just in terms of salary but also in the kind of work they are expected to do and where they do it. Rejection of the rural areas and a desire for the perceived attractions

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(12) See Chapter 6 for details of the new conditions of service.

of the town is a powerful and disturbing force among those who have been through the formal school system.(13)

For the provision of treatment at the periphery, more highly trained, and highly paid, orderlies may be more effective. But treatment can never, and certainly not in a primary health care approach, be separated from other aspects of health. In this approach the relationships between health workers and the community are vital; for preventive health, health education, and the development of community involvement.

A major argument used in support of auxiliary health workers is that such workers will be both familiar with, and committed to the communities in which they work. Vaughan suggests that the auxiliary can be very effective in primary health care since:

> ".....he is culturally and socially less removed from the people he is working amongst. Consequently he has a much better understanding of their problems".
>
> (1971 : p.269)

Much of the recent literature on auxiliaries makes essentially the same point. (UNICEF/WHO,1977;World Health Organisation,1979)

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(13) See Chapter 3

But, as van Etten suggests:

> "The implicit assumption of such views is that the medical auxiliary is fully committed to the communities he serves. Typically, his ideas and behaviour are in the long run considered to be in harmony with the needs of the community. However, these views tend to neglect the fact, that such positive attitudes will not arise automatically and that certain mechanisms are at work which will impede relationships between the health worker and the community".
>
> (van Etten, 1976: p.120)

Among the Southern Highlands orderlies there was considerable evidence of negative attitudes; in very many instances the rural people were seen as ignorant, lazy, superstitious and reluctant to change. Very similar attitudes are reported by van Etten from his study of trainee health workers.

Related to this, it was suggested in discussion of the Southern Highlands survey that orderlies placed great emphasis on an 'exhortatory' approach to health education.(14) At the extreme their conviction that people must be 'told what to do' was developed to an insistence that much more use should be made of the law to compel people to adopt 'hygenic habits'. As noted in earlier discussion, this attitude prevailed despite considerable evidence of its past failure to achieve any significant change.

Again, there are very close parallels with van Etten's findings in Tanzania:

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(14) See Chapter 10

> ".....the tendency to see rural people as extremely dependent on others by projecting on to them an almost absolute ignorance. This view holds that development is something which has to be decided on by "experts", whose major role in dealing with the people is regarded as "educating" them.
>
> (1976 : p.121)

Van Etten argues for Tanzania,and this again is the case in Papua New Guinea, that the patronizing, authoritarian attitudes of rural health workers are typical of government workers in rural areas, and arise particularly from the education system, and the nature of government bureaucracies and their relationships with people.

This relationship is epitomised in health education. Here again, interpretation of the results of the Southern Highlands study led to conclusions very similar to those reached by van Etten:

> "Traditionally, health education was the particular domain of health inspectors, whose main duties were to see that people followed the local authorities' rules on public health affairs such as sanitation, safe water supply and housing. In this context emphasis in health education was on the issuing of directives, rather than on discussing health problems with the aim of community participation. Our impression is that this tendency of talking down to people, rather than involving them, is still characteristic of much of the health education and, as we have seen, the students' terminology points to the same direction".
>
> (van Etten, 1976 : p.128)

Thus, this study has produced strong indications of negative, even hostile attitudes; many orderlies had a

superior, patronizing attitude to the rural people and a preference for authoritarian methods, grounded in the belief that they were dealing with ignorance, superstition and an inability to understand the need for change.

To the extent that such attitudes exist, and it is not claimed that they are either universal or conclusively demonstrated, then the present study would concur with van Etten that the orientation of health workers must be seen among the main obstacles to rural health development.

Health and Development in Papua New Guinea.

In order to achieve the objectives of a primary health care approach, health workers are required who identify with the people they serve. (World Health Organisation,1979) Their major task is to mobilize communities for health. (Feuerstein,1976, UNICEF/WHO,1977; Isley and Martin,1977; Ahmed,1978) In the Southern Highlands, as elsewhere, the new approach must be followed largely with the staff who are already in post; most of them have many years left to serve. As noted earlier, the most successful examples of primary health care have been in those societies which have pursued social transformation; the health sector has been reoriented in the context of national change and national ideology.(15) There is little of this is Papua New Guinea; whether the country, or particular provinces within it can develop cadres of rural health workers capable of rural community development is problematic.

Maddocks(1978), in a study of Pari village, near Port Moresby, discusses both the changes which have occurred in the

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(15) See Chapter 2

village and their effects on health. In his conclusions he comments on the problems inherent in the primary health care approach, given the changing nature of village life. In terms of community strength, he argues that Pari has lost a great deal in exchange for the 'progress' it has made. Health, he suggests:

> ".....though apparently improved, has become something which is no longer done 'by the people'. The clinic service has been imposed from outside, governed by a distant central authority, operating within a framework which is quite different from traditional village understanding. Major decisions affecting the health of Pari people are now made outside the village, away from the influence of the people.....
>
> The health planners will need to view their village health workers as far more than vehicles for the delivery of medical activity. They should be of the village, rather than of the 'Department', supported to foster better health through self-health and through all that is involved in community development".
>
> (Maddocks, 1978 : pp. 35,37)

The Southern Highlands, and indeed most of rural Papua New Guinea, has 'progressed' less far than Pari village; what Pari has lost many other communities still retain to some degree.

John Waiko, quoted earlier in this chapter, argued for 'subsistence independence based on primary resources'; it might be argued that primary health care in Papua New Guinea is a closely related concept. Health is not contingent on development but is part of it; a system of health services which is primarily concerned with the promotion and maintenance of health cannot operate except as part of a

development effort dedicated to the needs of the mass of the population. There are numerous forces operating against the success of primary health care, but there are considerable strengths also, particularly at the community level.

The successful future development of basic health services will depend not only on the formulation of appropriate policies but on the emergence, at all levels, of political forces with the power to implement them.

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APPENDIX

Methods used in this study and the need for further research

Details are given below of sources used, and methods employed, in the gathering of material for this study. The questionnaire used in the survey of aid post orderlies is included, with English translation. A list of persons consulted during this study is followed by some notes on needs for further research indicated by this study.

1. National health policy, planning and expenditure.

For the history of health services, extensive use was made of sources in the New Guinea Collection, University of Papua New Guinea, the Medical Library, University of Papua New Guinea and the Department of Health library, Konedobu.

For information on health planning and expenditure, unpublished material from the National Planning office and the Department of Health was used with permission, in addition to published material.

2. The Southern Highlands

Very little published material was available and considerable use was made of material made available by the Southern Highlands Management Authority, and the Southern Highlands Health Division Hospital and health centre records were also used, both from those facilities and the provincial health office.

3. Aid Post Orderly Survey

The principal tool here was a mailed questionnaire which is reproduced below.

The questionnaire was produced in consultation with the provincial health department and written by the author in Tok Pisin, following an intensive course in that language.

Questionnaires were sent to all government aid post orderlies in the province, through the health department. In virtually all cases this meant that orderlies collected the questionnaire with their pay on regular fortnightly visits to health centres. The questionnaire was preceded by a letter from the provincial health officer, in Tok Pisin, requesting the orderlies cooperation in the survey but emphasising the fact that the survey was independent of the health department and that replies were confidential.

This was reiterated on the questionnaire form itself ; replies were sent directly to the author using stamped, addressed envelopes provided. The replies came back over two months from January 1978, in the event nearly 90 per cent were returned, the great majority completed to a usable extent.

Analysis was done by the author using a hand-punched card system. One problem,encountered early, was that the names of aid posts given by orderlies did not always correspond with those used by the provincial administration. This was due to several factors. First, the names used on provincial maps were either wrong or where alternatives existed the name being used by the administration was not the name used locally.

With the assistance of health workers in the province, and university students from the province, these difficulties were overcome and provincial records were often amended. Second, it was found that the specific locations of aid posts had changed, without these changes having been noted in provincial records, and often without the provincial health office being aware of such moves.

Analysis of information such as age, place of birth, and years of service produced some difficulties but no serious problems. Answers to questions concerned with attitudes and opinions were naturally more difficult to deal with. For some of these, checklists had been used and coding was relatively straightforward but for open-ended questions it was neither possible nor desirable to reduce the total set of answers to a small number of categories. Wherever possible the analysis attempted to retain the variety of answers given while identifying those features common to the group.

With cards punched as fully as the data would allow, simple totals were derived and all likely relationships between variables were examined. Given the relatively small numbers involved, this was possible by hand, though time-consuming.

The mailed questionnaire was supplemented by interviews, in April 1978, with 40 orderlies, in 6 health centre areas. (Mendi,Tari,Koroba,Kagua,Ialibu and Pangia). These interviews, in Tok Pisin, were with randomly selected orderlies in each

area and were essentially open-ended discussions of the issues raised by the questions asked in the mailed questionnaire, which had already been completed by the time the interviews took place. However, no changes were made to the original answers in the light of this further discussion. Although some interviews were at aid posts, the majority were at health centres, during the regular visits by orderlies.

Although the extremely high response rate may be seen as exceptional and due in large part to the particular circumstances of aid post orderlies at the time of the survey, it would appear that more use could be made of this form of enquiry. If Tok Pisin is used, and questions relate to issues with which health workers are concerned, this method appears to have far more potential than was previously supposed.

The questionnaire used in the survey is reproduced below; it should be noted that the English translation does not, in all instances, convey the exact sense of the original but is the closest possible approximation.

Dipatem bilong Stadiman na We Bilongen long Yuniversiti bilong Papua Nui Gini

(Department of Anthropolgy and Sociology, U.P.N.G.)

PAINIM AUT LONG ED POS ODALI LONG SAUTEN HAILENS PROVINS
(Southern Highlands Aid Post Orderly Survey)

Plis,givim bek ansa long olgeta askim. Salim pepa i kam bek long Yuniversiti bilong Papua Niu Gini(long Mosbi). Olgeta kain toktok yu mekim bai ol i tokhait tru - olsem nogat wanpela man bai i lukim ol toktok yu mekim.
(Please answer all the questions. Send paper to U.P.N.G.(Port Moresby). Everything you say is confidential. No-one else will see it)

1. Nem bilong yu i husat? (What is your name?)

2. Wanem nem bilong ed pos bilong yu? (What is the aid of your aidpost)

3. Hamas krismas yu i gat?(How old are you?)

4. Yu marit o nogat?(Are you married?)

5. Meri bilong yu i stap wantaim yu?(Is your wife living with you?)

6. Yu i gat sampela pikinini o nogat?(Do you have any children?)

7. Krismas bilong ol wanwan pikinini bilong yu i hamas?
(How old are your children?)

8. Wanem hap is ples bilong yu tru?(What is your birthplace?)

9. Ol wanem tok yu inap long spik?(What languages can you speak?)

10. Wanem 'last' skul tru em yu i bin pinis longen?
(What was your last (formal) school?)

11. Wanem standet long skul yu bin pinis?
(What was your final 'standard' at school?)

long praimeri skul
(primary school) ☐

long hai skul
(secondary school) ☐

12. Long wanem hap yu bin kisim trenin bilong yu olsem ed pos odali?
(Where were you trained as an aid post orderly?)

13. Yu bin kisim narapela kain trenin long marasin tu o nogat?
(Have you had any other medical training?)

14. Yu bin mekim trenin tu long ol sampela arapela wok o nogat?
(Have you been trained for any other kind of work?)

15. Hamas yiar o mun yu bin istap long dispela wok olsem ed pos odali?
(How long have you been an aid post orderly?)

Nau mi laik mekim sampela askim long wok em yu i nau wok longen. Plis,yu putim mak olsem(✓)long ol ansa em yu i laik givim long ol wanwan askim.

(Now I would like to ask you about the work you do now. Please put a mark like this(✓)against the answer you want to give to each question)

16. Man husait i wok olsem ed pos odali mas lukautim ol rekot na raitim long ol hap fom. Em i olsem wok bilong yu tu? Na em i: (An aid post orderly has to keep records and fill in forms. Is this part of your job? Is it:)

a) isi(easy) ☐

b) sampela taim i hat (sometimes hard) ☐

c) planti taim i hat moa (hard) ☐

16a. Sapos dispela hap wok i hat, bilong wanem em i olsem? (If this work is hard,why is it?)

17. Ed pos olsem mas i gat olgeta samting bilong marasin na olsem. Em ol samting yu laikim longen ol i: (An aid post must have supplies. Of what you need are supplies?:

a)olgeta taim yu laikim longen (O.K.) ☐

b)sampela taim i sot (sometimes short) ☐

c)ino gutpela tumas (not good) ☐

18. Sapos yu i gat wori olsem ol samting i go sot,ol wanem samting tru em yu i save lukim ol i sot tru? (If you think supplies are inadequate, what do you usually see as being in short supply?)

19. Yu save i painim hat long ol kainkain wok yu mas mekim? (Do you generally find the job hard)

a)yes(yes) ☐

b)nogat(no) ☐

20. Sapos yu i gat sampela wori istap,em ol wanem tasol? (If you have problems, what are they?)

21. Wanem ol kainkain sik na nogut olsem ol planti manmeri/ pikinini save i gat planti taim long ples we yu i istap? (What are the most common sicknesses of the people in your area?)

22. Igat sampela samting istap long tingting bilong yu long halpim ol pipol tasol ino inap, dispela olsem istap o nogat?

    (Are there some problems which you would like to help people with but you can't?)

23. Yu save givim toktok long ol pipol long sindaun bilong famili, olsem long hamas pikinini ol i mas ignat na kain sindaun olsem long marit tu-ol i save kolim-'family planning"?

    (Do you give advice on family planning?)

24. Yu igat ol samting bilong 'family planning' - olsem ol i save givim long man na meri husait ol i marit bilong ol long wokim aut hamas pikinini ol i ken i gat na long wanem taim ol i ken i gat?

    (Do you have family planning supplies?)

25. Sapos wanpela i bringim i kam wanpela liklik pikinini na yu tink olsem em ino kisim gutpela kaikai yu save mekim wanem?

    (If a child is brought to you who is not eating properly what do you do?)

26. Olgeta taim ol pipol i sik oli save kam lukim yu o nogat?

    (Do sick people always come to the aid post?)

27. Sapos ol i no save i kam olgeta taim ol i sik, bilong wanem yu tink ol ino save mekim olsem?

    (If people don't always come when they are sick why do you think they don't?)

28. Wanem tingting yu save givim long pipol long 'hygeine' (gutpela sindaun)?

    (What advice do you give people on'hygiene'?)

29. Ol pipol i save kisim tingting bilong yu em yu givim long ol?

    (Do people take your advice?)

30. Ol wanem samting yu ting ol pipol long ples bilong yu i mas mekim long igo het long 'hygeine'?

    (What do you think the people of your area should do to improve'hygiene'?)

31. Yu ting ol i bai senisim tingting bilong ol long pasin ol i save mekim?

    (Do you think people will change their ways?)

32. Bilong wanem yu ting ol i no inap bai senisim tingting bilong ol long ol samting ol i save mekim olsem sampela hap i no gutpela long 'hygeine'?

    (Why do you think they will not change things which are not good for 'hygiene' ?)

33. Husat yu ting i bai traim skulim ol pipol long wok bilong 'hygeine'?

(Who do you think should educate people in hygiene'?)

34. Husat yu ting i bai wok long stretim wok bilong 'malnutrition' (kisim gutpela kaikai oltaim)long ples bilong yu?

(Who do you think should work on 'malnutrition' in your area?)

35. Wanem samting yu i ting mas mekim long stretim dispela wori?

(What do you think should be done to deal with this problem?)

36. Sapos ol i bringim wanpela pikinini long yu husat i gat pekpek wara yu i save mekim wanem?

(If a child with diarrhoea is brought to you what do you (usually)do?)

37. Yu i orait na hepi long wok em nau yu wok longen, o yu laikim sampela senis i kamap? Sapos yu laik lukim senis i kamap, wanem ol long dispela yu laikim:

(Are you satisfied with your conditions of work or would you like some changes. If you would like to see changes what would you like?)

a)moa pei/moni(more pay/money) ☐

b)gutpela haus(better house) ☐

c)gutpela garden(better garden) ☐

d)apim yu long wok(kisim promosin) (promotion) ☐

e)moa trenin(more training) ☐

f)moa samting bilong marasin (better medical supplies) ☐

g)arapela samting,yu yet tok:- (other) ☐

38. Sapos yu inap wok olsem ed pos odali long wanpela hap olsem laik long yu, long wanem hap tru bai yu laik wok?

(If you could work as an aid post orderly wherever you like, where would you like to work?)

38a. Bilong wanem yu i laik wok long dispela hap?

(Why would you like to work there?)

39. Sapos bai yu inap senisim wok bilong yu bihain,wanem kain arapela wok yu laik mekim?

(If you could change your job,what kind of work would you like to do?)

39a. Bilong wanem yu i laik senisim wok bilong yu?

(Why do you want to change your job?)

40. Sapos yu i gat ol pikinini, bai yu i gat laik long ol mekim o holim wanem kain wok taim ol i kamap bikpela?

(If you have children, is there some work you would like them to do when they are 'grown-up'?)

41. Yu inap long kisim moni long sampela hap narapela olsem long pei em yu save kisim long A P O?

(Do you have any income other than your A P O pay?)

42. Bilong wanem tru yu bin kamap olsem Ed Pos Odali(APO)?

(Why did you become an Aid Post Orderly?)

43. Yu save planim ol wanem kain kumu o grin long gaden bilong yu?

(Do you grow vegetables in your garden?)

44. Yu save lukautim ol pik na kakaruk tu?

(Do you have pigs and chickens?)

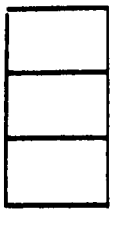
45. Olsem yu inap long go ausait na lukluk na toktok wantaim ol pipol we ol istap longden?

(Do you go on patrol?)

a) i no gat wanpela taim(never)

b) sampela taim(sometimes)

c) planti taim(often)



46. Sapos yu go ausait long patrol yu save mekim wanem?

(If you go on patrol, what do you do?)

47. Tenkyu tumas long givim ol ansa ol dispela askim. Sapos yu i gat sampela samting long tokim mi long wok bilong yu,yu ken tokim mi long hia. Raitim long daunbilo. Taim yu pinis long dispela,plis putim dispela pepa insait long sikin pas na salim i kamlong mi.

(Thankyou very much for answering all these questions. If you have anything else to tell about your work, you can tell me here. Write below. When you have finished, please put this paper inside the envelope and send it to me.)

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Department of Anthropology,
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Port Moresby.

Persons Consulted

Department of Health(Port Moresby)

J.Assamani	(Budget)
R.Guma	(Medical Statistics)
I.Oda	(Planning and Research)
B.Taukuro	(Health Planning)

National Planning Office

W.Allan	(Planning and Programmes)
S.Kopi	(Health Planning)
J.Lambert	(Nutrition)
R.Lynch	(Social Planning)
G.Simpson	(Southern Highlands Project)

Southern Highlands Province

B.Coghill	(Nutrition)
L.Clarke	(Provincial Health Officer)
M.Gandi	(Health Inspector)
S.Man	(Health Education)
B.Iwais	(T.B./Leprosy)
M.Marchment	(Dental Officer)
J.Millar	(Medical Superintendent Mendi Hospital)
V.Reed	(Nursing Officer)
J.Wallace	(Management Authority)

Further Research

From this study, several areas may be identified as demanding further research:

1. Health Planning

The formulation and implementation of health policies and programmes at both national and provincial level. The impact of the National Public Expenditure Plan and decentralisation are of particular importance.

2. Rural Development Projects

The impact of large-scale projects such as that in the Southern Highlands has wide relevance to development planning. Research is needed both to monitor the realities of social and economic change brought by 'integrated development projects' and to assess the impact on health conditions and the distribution of health resources.

3. Primary Health Care

There is at present very little information on the relationships between health workers and the community. As community organisation and participation is vital to the primary health care approach more needs to be known regarding the possibilities and limitations of this approach in rural areas. The Southern Highlands is attempting to decentralise within the province and use district health committees as a means for community involvement. The operation of these committees should provide valuable lessons for other areas.

Traditional medicine has received considerable attention in the rhetoric of health policies but almost total neglect in health programmes. Unless efforts are made to establish the possibilities of relationships between traditional and non-traditional health systems much of the traditional systems will be irretrievably lost.

Finally, the use of non-professional village health workers has been proposed but similarly neglected in health programmes. The possibilities have been shown to be great in many developing countries. Papua New Guinea would benefit enormously from such workers and research which assisted the formulation and successful implementation of village health worker programmes would be extremely valuable.

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