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9. ABSTRACT Summarizes the present health delivery system in Namibia, citing funding, manpower, and facilities. Resources for future development and manpower shortages, distribution and inadequacies are discussed. A review of the available literature suggests that health care services are readily available and accessible. However, key sources of data relating to morbidity and mortality are not available in reliable form from South African government sources. There is strong evidence of malnutrition in the reserves or homelands, requiring protein supplementation of the rural African diet. There is a lack of knowledge concerning the effective application of an adequate health care system designed to meet the needs of the individual as well as the community. Goals, priorities and objectives are not clearly defined, and there is no adherence to principles of sound management and organization in the present health care system. Until April, 1970, the mission hospitals provided primary hospital services in the Homelands. Increasing use is made of paramedical personnel. At various clinics they distribute medication and give injections until the next visit by a qualified physician. At present there are about 183 hospitals and clinics. In 1973 there were 143 general medical practitioners and 19 specialists in the territory. To solve the manpower problems facing Namibia, it needs to develop education programs for the medical, para-medical, and nursing personnel and to commit the necessary funds to this end. Immunization programs are critical to prevent epidemics of polio, tuberculosis, diphtheria, tetanus, and pertussis. In general, curative services should be de-emphasized, with an increase in preventive and educational services.			
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FINAL REPORT

HEALTH CONSEQUENCES OF
TRANSITION IN NAMIBIA

by

James C. Watson

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An assessment of the health care delivery mechanism in Namibia presents a formidable and complex investigation which transcends all aspects of national life.

A review of the available literature suggests that health care services are readily available and accessible. This information, however, is available solely from South African government sources. Key sources of data relating to morbidity and mortality are not available in reliable form.

The topography and climatology of Namibia presents problems not encountered in previous studies, namely; unreliability of adequate water supply universally, i.e., throughout the country due to sporadic rainfall in some areas, ground water scarcity, significant desert areas, inadequately developed power supply and inefficient transportation due to poor roadbeds in the deserts, and sparse population. These together with the extenuating problems universal to the continent compound the solubility of the health and environmental problems in Namibia.

Although animal husbandry, mining and fisheries are the three "cornerstones" of the present Namibia economy, we have strong evidence of malnutrition, particularly in the reserves or homelands. In this regard, we find it necessary to attempt to strike a balance between the possibility of diverting part of the seafood crop to the food chain, if this is an acceptable alternative to the supplementation of the rural African diet.

We cannot overemphasize the necessity for giving full consideration to the values and customs of the indigenous populations in this hypothesis and others that will be developed.

No more should resources be wasted by circumventing this aspect of planning (see Zimbabwe report). In personal communication with native Zimbabweans and Namibians the gravest concerns have been expressed regarding these aspects. We would do well to exhort those concerned with this effort that any "programs" initiated, planned, implemented and evaluated be so done in the context of the value system of those concerned (Watson, 1973).

The body of knowledge available for study is not sufficient to develop plans and strategies that would allow us to be scientifically bound from that data base. However, it is not invalid to draw on our expertise to develop broad strategies and plans that do not severely over-extend these constraining factors.

The health manpower situation is not very critical as ascertained from the available data. But, there does exist the maldistribution so prevalent in Africa and other under developed areas. This phenomenon is not peculiar to European health personnel but is one also promulgated by African professionals, particularly physicians. Consequently the expertise of the physician, for instance, is not optimally utilized and will not be until he becomes a supervisor as well as a practitioner.

Again, we reiterate that the human problems associated with transition cannot be resolved without the presence of a fairly

well nourished and healthy participant. This is a prerequisite to the social, political and economic participation of those peoples heretofore excluded from the process of self-determination and self-government. The greatest need is a feasible environmental health program (including health education) which would yield dividends measurable in terms of productivity and contribution to the GNP of the country.

The emphasis on therapeutic health care must be exchanged for environmental priorities. The Western system may not be the most acceptable or the most desirable method of delivery of services.

PRESENT HEALTH DELIVERY SYSTEM IN NAMIBIA

An acute manpower shortage is becoming increasingly evident, particularly in certain parts of South West Africa.

In keeping with informed opinion concerning the problems associated with providing adequate health care for all members of the community, responsible health authorities in the Republic of South Africa faced certain systemic and cardinal factors which influenced the provisions of such care.

On April 1, 1970 the Department of Health began to organize and design the health services to provide comprehensive family health care, with permanent community input.

A common phenomenon is that health services are not keeping pace with the increasing and everchanging needs of population,

despite an explosion of scientific knowledge in the world, which, if applied, could eliminate a vast amount of existing disease.

A second common problem is that due to fragmentation of health care at all levels, unbalanced development of services frequently occurs. Thus manpower and economical resources are strained due to lack of knowledge concerning the effective application of an adequate health care system, designed to meet the needs of the individual as well as the community.

FUNDING

There exists a lack of knowledge concerning the effective application of an adequate health care system designed to meet the needs of the individual as well as the community. Goals are not clearly stated, priorities not defined, plans not related to the achievement of objectives, and there is no adherence to principles of sound management and organization. Such fragmentation of health care at all levels has made continued funding a short term possibility at best.

Of approximately eight hundred (800) statutory local authorities, six hundred forty six (646) render preventive and promotive personal and environmental health services in their districts, which qualify for part-refund on approved expenditures by the State.

In order to assure continuity of care and preventive care, attempts are under way to organize and implement a system to give maximum health services with the available money.

The State is responsible for staff and costs of services provided in areas where other public or mission hospitals are nonexistent or inadequate. The available group of state hospitals is limited to indigenous and coloured groups only.

Hospital fees for white patients are charged according to a fixed tariff based on income if they can pay. Non-white out-patients are normally charged ten cents per admission and in-patients fifty cents irrespective of the duration of the hospitalization. Patients unable to pay are admitted free. All non-white patients are entitled to free treatment by medical practitioners and specialists.

The state-aided public hospitals were established and are maintained on the initiative of local communities and public bodies, and receive financial support from the Administration up to sixty percent of their expenditure. These hospitals cater mainly to white patients who pay according to a fixed tariff. Non-white patients pay on the basis established for State hospitals.

Between 1902-1910 the Finnish Missionary Society provided some of the first health facilities in Ovamboland. The Mission hospitals serve mainly the indigenous and coloured groups, though some cater to white groups. According to the South West Africa Survey for 1974, the rates of subsidization of the missions

were subsidized to an extent of eighty percent (80% of maintenance expenditure in the Northern areas and one hundred percent (100%) in the Southern sector, plus ten percent (10%) of capital expenditures, plus the provision of free medical supplies. As from April 1, 1966, subsidies were increased to one hundred percent (100%) of all current expenditures, as well as approved building and equipment costs. Medicines are still supplied free of charge. The extent of the subsidization of mission hospitals can be seen from the figures of expenditures during the past few years.

SUBSIDIZATION OF MISSION HOSPITALS IN RESPECT OF
CURRENT EXPENDITURE, FREE MEDICINE AND PORTION OF
CAPITAL EXPENDITURE.

YEAR	Southern Sector. (Rand)	Northern Sector (Rand)	Total (Rand)
1963/64	157,300	266,316	423,616
1964/65	101,347	590,212	691,559
1965/66	176,602	509,517	686,119
1966/67	236,660	698,951	935,611

Private hospitals such as mine hospitals and clinics, for patients of all groups, and private maternity homes serving only white communities receive no financial aid.

The State primarily maintains the clinics, the local authorities, the missions and a few State-aided public agencies.

Approximately eighty-seven percent (87%) of all expenditures are subsidized with the mission clinics being maintained basically the same as the mission hospitals. According to the official estimates "expenditures on health services has continued to show a marked upward trend during the past years." The following indicates the Administration's expenditures on maintenance, i.e., running costs.

Year	Current Expenditure (Rand)
1962/63	1,991,796
1963/64	2,240,572
1964/65	2,919,498
1965/66	3,564,614
1966/67	3,906,882
TOTAL	14,623,362

The major portion of the above was for health services for the indigenous and Coloured groups, viz., 79% of the total of R14,623,362, or \$11,551,867, as against \$3,071,495 (21%) for the White group. It must be remembered that before April, 1966, when missions came to be subsidized 100%, there was additional mission expenditures, not reflected in the above totals, on services for the indigenous and Coloured groups.

The 1966-67 estimates provide for maintenance expenditures on services for the White group of \$501,364, in contrast to R3,405,518 for the Coloured and indigenous population groups.

This means that at present 12.8% of such expenditure is incurred for the White group, as against 87.2% for the other population groups."

The following capital expenditure was incurred in providing hospital and medical services.

Year	Capital Expenditure (Rand)
1962/63	365,019
1963/64	1,154,758
1964/65	994,022
1965/66	734,653
1966/67	669,033
TOTAL	3,917,485

The following break-down of capital expenditure on health services is instructive:

Year	Indigenous and Coloured Groups			Total (Rand)
	White Group (Rand)	Southern Sector (Rand)	Northern Sector (Rand)	
1962/63	274,088	60,276	30,655	90,931
1963/64	166,953	207,296	780,509	987,805
1964/65	45,633	90,621	857,768	948,389
1965/66	76,991	18,696	638,966	657,662
1966/67	19,652	--	649,381	649,381
TOTAL	583,317	376,889	2,957,279	3,334,168

Total Administration expenditure for health, i.e., current as well as capital expenditure, thus shows a constant upward trend, viz.

Year	Current and Capital Expenditure (Rand)
1962/63	2,356,815
1963/64	3,395,330
1964/65	3,913,520
1965/66	4,299,267
1966/67	4,575,915

Expenditures for health administration has shown an upward trend in the last fifteen (15) years, i.e., 1962/63-R2,356,815 to 1966/67-R4,575,915. On a per capita basis administration in the late 1960's for health services was R7.86 per capita. This figure represents an overall figure.

MANPOWER

Until April 1, 1970, the mission hospitals provided primary hospital services in the Homelands. The Department of Health through its District Surgeon Services provided additional medical service while a small number of tribal clinics provided nursing care. The towns inhabited by whites had a small number of private practitioners. But, as the whites left the practitioners also departed.

The Medical Officers of Health have voiced concern over a survey conducted pertaining to data on full time doctors who carry out such duties as health inspectors. The data obtained indicated that seventy three percent (73%) of Medical Officers of Health were at least fifty (50) years old or older, and fifty percent (50%) of them were earning R12,000 per annum or less. Sixty-four percent (64%) of the Deputies were fifty (50) years of age or older, and eighty-five percent (85%) were earning less than R12,000 per annum. It was estimated that out of approximately two hundred twenty-five (225) full time medical posts at all levels only sixty seven percent (67%) are known to have been filled.

In 1967 there were one hundred fourteen (114) general medical practitioners in the area with sixteen (16) specialists. In 1973 there were one hundred forty three (143) general medical practitioners with nineteen (19) specialists in the Territory.

With the exception of South Africa, there are probably few, if any, countries in Africa south of the Sahara with a more favorable distribution of physicians to population. A survey conducted by the University of Witwatersrand pertaining to active engagement in practice, geographic location, fields of practice, etc. on graduates from 1925 to 1972 indicates that ninety three percent (93%) of graduates were white. There was a total of 3,984 graduates for the years studied. The great majority of

these graduates, sixty four percent (64% of the total traced, were in the Transvaal, from which the lowest return, 41.7% was obtained. Percentage returns from overseas countries were expectedly high, the highest being the USA and all exceeded the mean return for the Republic of South Africa of 42.9%. The mean return for all graduates outside the Republic was 58.3%. The overall return for the survey was 44.8%.

The geographic distribution of the graduates studied shows that the majority of graduates remain close to the medical school after graduation. Fifty five percent (55%) of the graduates remained in the PMV triangle, while only four percent (4%) settled in the smaller towns and rural regions of the Transvaal.

The population of Namibia in the early 70's reflected 762,184 persons covering an area of 824,292 square kilometers.

Various arrangements are in operation to supplement the work of the full time qualified staff in the northern territories. Airlift teams consisting of specialists are flown into the remote areas twice monthly.

In the Southern sector there are four (4) specialists and twenty-eight (28) Government Medical officers who act as district surgeons. Their primary duties are to render curative and preventive services in their area. In the northern areas the Government doctors act as district surgeons.

Increasing use is made of so-called paramedical personnel. At various clinics they do such tasks as distributing medication,

giving injections, until the next visit by a qualified physician.

The strength of the nursing staff in 1973 was 2,330 of whom 1,550 were drawn from the Black and Coloured population groups.

FACILITIES

At present there are approximately one hundred eighty three (183) hospitals and clinics. Of these one hundred forty five (145) are for the Black and Coloured population groups, seventeen (17) render services to all population groups and twenty-one (21) serve the White population group.

In 1973 there were one thousand eighty five (1,085) beds available for the white group and six thousand three hundred (6,300) beds for the other population groups, giving a ratio of about ten (10) beds per one thousand (1,000) of the population.

The South African Institute of Medical Research provides all medical laboratory services for South West Africa. There is a large Central Laboratory at Windhoek with six (6) branch laboratories. The facilities fall into the following four categories:

A. State Hospitals and Clinics - These state-erected institutions bear full responsibility for staff and operating costs. These hospitals and clinics have been provided in all areas where other public or mission hospitals are nonexistent or inadequate. With two (2) exceptions (Windhoek and Walvis Bay) this group of hospitals contains the largest number of beds available to the indigenous and Coloured groups only.

B. State-aided Public Hospitals and Clinics - These state-aided public hospitals and clinics have been erected and are maintained on the initiative of local communities and public bodies, and receive aid from the Administration to the extent of sixty percent (60%) of their expenditure. There were as of 1967 twelve (12) of these hospitals in the Southern sector.

C. Mission hospitals - The mission hospitals or facilities are sparsely scattered and serve mainly the indigenous and Coloured groups.

D. Completely Private Hospitals which receive no financial aid - These institutions are primarily the mine hospitals and clinics supported by private industry but also include the private maternity homes serving only the White communities.

Until April 1, 1970, the main providers of hospital services in the Homelands were the mission hospitals. In addition to these hospitals, the Department of Health, through its District Surgeon Services provided a district-medical service and a limited number of tribal clinics providing a district nursing service.

At the beginning of February, 1973, 48.3% of the mission hospitals in Bantu Homelands had agreed to render comprehensive health services and had established Health Boards for their particular districts. Progress is still being made by a process of negotiations with the remainder of these hospitals, towards acceptance of the policy.

The Transkeian Government took over responsibility for their health services on the 1st of April 1973 and will in the future have to decide on their own health policy.

IDENTIFICATION OF RESOURCES

There are now one hundred eighty three (183) hospitals and clinics in Southwest Africa; one hundred forty five (145) are for the Black and Coloured population groups, twenty-one (21) for the White population group, and seventeen (17) provide services with regard to race or color.

With the exception of South Africa, "there are probably few, if any, countries in Africa south of the Sahara with a more favorable distribution of physicians to population" as that which exists in Namibia. In 1973 there were one hundred forty three (143) general medical practitioners and nineteen (19) specialists in the territory." Most medical specialists are available to the people of the Northern territories at least twice a month. Such specialists are transported by air from Windhoek to the State hospital in Oshakati, Owanbo, which was opened in 1966.

In addition, there are four (4) specialists and twenty-eight (28) Government Medical officers who act as District surgeons for the southern sector.

The location of physician personnel has made it necessary to use "para-medical personnel" to their maximum capabilities.

The education and training of all health manpower is accomplished through the registration of and establishment of standards for all medical practitioners and para-medical officers with the South African Medical and Dental Council. Nursing personnel are subject to similar scrutiny with the South African Nursing Council.

The first attempts were made in 1973 to establish Teacher Training Centers to develop expertise in teaching methodology.

The mobile task force established in 1972 will assist, on request, in educational planning and evaluation programs. The appropriate budgetary commitments are beginning to be made to education programs. As a result of such commitments, progress is being made in strengthening continuing educational (in-service) programs.

With the exception of progress in implementing a better and consistent way of funding (reimbursing) the hospitals and clinics, there exists few, if any, health regulations, save those imposed by the various Medical and Nursing Councils.

In order to establish methods of communicating over the vast territories, radio-receiving and transmitting sets are available in the centers and the central state hospitals to make immediate contact with doctors, nurses or specialists, or the ambulance service. The high cost of installing telephones in the outlying clinics would be too expensive for such a large territory.

Regular features on health are radio broadcasted in all countries of the Region to promote health education and needed communication. According to the Southwest Africa Report, "the press and other mass media cooperate in publicizing World Health Day and special health campaigns."

Despite the vast distances and topography effective ambulance and air transport systems are maintained.

External assistance is provided by the WHO for teachers and teaching supplies and equipment to be assigned to the national training institutions. A WHO coordinator is responsible for the management of the courses at the training institutions.

Efforts are underway to obtain international cooperation in developing primary health care with community participation, communicable disease control, the promotion of environmental hygiene, family planning which will include maternal and child health, and training adopted to local realities.

MANPOWER SHORTAGES, DISTRIBUTION OR INADEQUACIES

In comparison to other areas of Africa, with the exception of South Africa, Namibia has the most favorable proportion of physicians to population.

The manpower problems which face Namibia are to develop education programs for the medical, para-medical and nursing personnel, and to commit the necessary funds to manpower development. The most apparent problem stemming from Namibia's weak

continuing education programs is the failure to use para-medical personnel to their maximum capabilities.

In spite of the apparent, or seemingly apparent, supply of adequate physicians and other personnel in Namibia, there exists a void in services rendered to patients due to a failure to maximize the use of available personnel. To reemphasize an earlier point, the proper or satisfactory use of available personnel cannot be accomplished until maximum use is made of para-medical personnel. Such personnel must be adequately trained and subject to continued training and inservice education.

The personnel at the peripheral level should be qualified and required to seek out problems instead of waiting for them, or at best, the physician to identify them.

The extent to which the para-medical or front line personnel are qualified will determine the functions which can be entrusted to them.

The development of stronger continuing education programs will ultimately provide a better system of health care. A shift of emphasis away from the physician is needed. More attention needs to be paid to the non-physician personnel. "It is recognized that the physician of today, paradoxically, is over-worked professionally, although (in a managerial sense) as a supervisor of health workers he is underemployed. An extreme example of this situation is the inverted pyramid that exists in some African

countries, where the number of physicians, small as it is, far exceeds the number of auxiliaries; sometimes the situation is further complicated when the auxiliary is not allowed to function except under the direct supervision of a physician so that the provision of medical care still depends primarily on the physician.

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DEMOGRAPHIC PROFILE

LIVING CONDITIONS

The intent here, is to describe the conditions in which the Namibians live. This includes some discussion of the occupational and educational environment, as well as the relationship of these and other environmental factors to the health status of the population.

THE OCCUPATIONAL ENVIRONMENT

Most businesses in Namibia are owned by Europeans. These businesses depend on African labor force for their survival. This labor force numbers some sixty thousand (60,000) Africans, of which forty three thousand (43,000) were migrant workers in 1971. This represents one of the largest migrant work forces in all of Africa, including South Africa, where only thirty percent (30%) of its work force were migrant in 1971. This large number of migrant workers is a direct result of the homeland policy in Namibia. The results of such a policy are rather obvious, namely, a large black migrant labor force which serves the European business interests. The importance of such a labor force to the Namibian economy was demonstrated in 1972, when some thirteen thousand (13,000) of these migrant workers went on strike. This action by the migrant workers had a considerable impact on the Namibian economy and drew world wide attention at the time.

Kane-Berman's analysis gives a distribution of the migrant labor force from various segments of the Namibian economy.

TABLE 1

<u>NAMIBIAN ECONOMY</u>	<u>WORK FORCE</u>	<u>PERCENTAGE OF TOTAL</u>
Farming	10,900	25%
Domestic Service	2,700	6%
Mining	12,800	30%
Fishing	3,000	7%
Government, Commerce and Industry	14,000	32%
Total	43,000	100%

Source: J. Kane-Berman, Contract Labor in South West Africa, South Africa Institute of Relations, May, 1972.

This system of migrant workers was established to support the European economy, and the notion of contracts was instituted in order to control the supply of black workers in white areas.

AGRICULTURE

There are no available figures for the number of agricultural workers involved in the production of specific crops, but from crop production figures it is possible to make some assumption regarding the relative degree of involvement in the production of certain agricultural products. The two principal agricultural

exports of Namibia are beef cattle and Karakul pelts (sheep). Hoof and mouth disease is the major endemic disease affecting these exports. The control of this disease has been focused in the north of Namibia. Many believe that the prevalence of this disease among the livestock of non-white owners have prevented the commercial exploitation of this group. In order to maintain this livestock, the production of certain crops is necessary. The production of these crops require the use of land and occupies a large percent of agricultural workers. Such crops as rice and others requiring water-soaked fields are particularly important for the health hazards they may present. These water-soaked fields can easily be infested and provide a means of transmission for the helminthic diseases and schistosomiasis.

INDUSTRY

Industrial employees are faced with a number of occupational hazards. Much of the industry of Namibia is concentrated in and around urban areas, because of the availability of electric power, reasonable transportation, and contract labor from the various homeland sites, especially from Ovambo. Industrial establishments are primarily engaged in mining, dairy products, fishing and the production of some light consumer goods. Of all the businesses in 1971, sixty thousand (60,000) people were employed, of which seventy five percent (75%) or forty three thousand (43,000) were

migrant workers. These migrant workers, mostly African, present some interesting health problems.

Because many of these industries are small, with limited funds, the services to the employees are minimal. Therefore, the health of most industrial workers (white) is controlled in terms of various acts of the South African Parliament. Some of these acts are: The Hazardous Substance Act 1973; Inter-departmental Committee for the Protection of Man Against Toxins; and the Atmospheric Pollution Prevention Act (No. 45 of 1965).

The health problems of the migrant labor force are different from those of the white labor force mentioned above.

The Ovambos, provide most of the Namibian contract workers. They are recruited at Ondangua and given physical examinations, including a rectal examination. These examinations have been described as humiliating. After the examination, the contract worker is classified as A, B, and C. This classification is then given the name and address of an employer in the south for a period of one or two years.

As a result of overcrowded conditions in their "homelands", most of the African men are forced to leave their families and go south for work. This situation results in broken marriages and social disruption in communities. In addition, the problems of alcoholism, fatherless children and abandoned mothers are prevalent among these African workers.

There are several health hazards that may exist as a result of the overcrowded conditions described above. The lack of sanitary facilities presents many problems. In the "homeland" areas it is reasonable to assume that waste disposal, poor water supplies used for cooking and other purposes are health hazards. Flies and other disease-carrying insects that surround the latrine facilities also have access to the food. Insects may also breed in areas near the homes where puddles are formed from heavy rains during the rainy season. It is difficult to know to what extent poisonous reptiles are problems in these areas. The migrant workers, themselves, live in crowded, unsanitary tenements. The construction of these tenements is unknown. It is reasonable to assume that communal showers and toilet facilities are located in these facilities. Overcrowding in many of the "homeland" areas far exceeds what is considered desirable.

EDUCATIONAL ENVIRONMENT

The educational system of Namibia is described in the South West Africa Administration's white paper for 1975. It has been pointed out that the physical facilities used for education are in many instances in poor condition and not conducive to the development of good health habits in the homeland areas. According to the report health education is taught in the secondary schools. To what extent, the teaching of these subjects provides for an atmosphere for healthier living is difficult to

determine from the available data. While the National Plan for Education recommends the creation of a health environment in the schools and the institutions of health education and school health programs, it is difficult to determine if there was a plan for financing or implementation of these programs for the African population.

POPULATION TRENDS

The population of Namibia is expected to increase vastly in the near future. The dilemma which the Namibian Government faces is that not only must it provide necessary services such as water supplies, school and health facilities to the present population, but that in the next twenty years twice as many people will need these services. Moreover, certain trends within the population growth aggravate the situation. It is reasonable to assume that the rate of natural increase can be expected to rise so that the population will expand even more rapidly in the future. If the current trends of other African countries persist, the younger groups of the population will increase in their proportion to the total population, so that Africans of working age will have to provide for relatively large numbers of dependents. Migration from the "homelands" to the south can be expected to increase so that the system of migrant labor will face new problems in the future.

According to the 1970 census the total population of Namibia was 762,184, with an annual growth rate of 1.9%. The population density was two per square mile, with 60% of the population living in the north of Namibia.

Most of the African population reside in areas commonly referred to as "homelands." Five million Africans live in Ovamboland, the largest of these areas, while only 155,400 Africans live in Tswanaland. In 1970 there were 90,658 whites living in Namibia. Of these, 61,000 spoke Afrikaans. There were 77,602 coloured in Namibia in 1970, of which 32,853 were Nama, 28,275 coloureds and 16,474 Rehoboth Baster (see Table 2).

Source: 1970 Census, Pretoria

TABLE 2

NAMIBIAN POPULATION
1970 CENSUS DATA

<u>Namibian Population</u>	<u>Number</u>	<u>Percentage</u>
African -		
Ovambo	342,455	46.2
Damara	64,973	8.7
Okavango	49,577	6.6
Herero	49,203	6.6
East Caprivia	25,009	3.3
San	21,909	2.8
Kadrovelder	6,467	0.9
Tswana	3,719	0.5
Other	14,756	2.0
TOTAL	578,068	77.6%
White -		
Afrikaans speaking	61,600	8.2
German speaking	20,000	2.6
English speaking	7,250	1.0
Other speaking	1,800	0.2
TOTAL	90,658	12.0%
Coloured -		
Nama	32,853	4.4
Coloured	28,275	3.8
Rehoboth Baster	16,474	2.2
TOTAL	77,602	10.4%
TOTAL	746,328	100.0%

HEALTH STATUS

MORBIDITY DATA

The lack of incidence and prevalence data on Namibia understates the true disease situation, but can provide some insight into the disease patterns that currently exist. Most reports of disease patterns in this region of Africa deal with South Africa almost exclusively. According to a 1974 survey, the leading causes of morbidity in Namibia are malaria, tuberculosis, meningitis, and most recently, cholera. Data regarding the age and sex distribution was not available. However, these distributions are available for South Africa.

Cancer of various forms appears to be a leading cause of morbidity and mortality in Namibia. For instance, epidemiological studies over the past twenty years have shown that among males, the most common form of cancer was primary liver cancer, with the only exception being in the Transkei. Esophageal cancer has been on the increase among the male population. Lung cancer is still a rare occurrence in rural Africans, but is on the increase among the urban population. Cancer of the penis was more prevalent in the African populations.

Cervical cancer is responsible for 40% of all the female cancers occurring in tribal areas. Breast cancer is much less common in the African female.

Lung cancer has risen from 8% to 52%, and antral cancer has dropped to 13% since 1950. This is the situation in the urban African population.

NUTRITION IN NAMIBIA

INTRODUCTION

Namibia is a country occupying a 318,261 square mile (824,293 sq. kilometers) area located in the southwestern corner of the African continent. The majority of the country may be classified as desert and adequate water resources can be found only in the extreme northern and southern limits of the country. The soil of the country is infertile and inhospitable to food crops. The population is 762,184 (1970 census) of which 88% are black and 12% are white. Agriculture is on a subsistence level and there is a well developed fishing industry which processes its products for export. The food supply is inadequate to feed the population and food must be imported yearly from the Republic of South Africa. There has not been a survey of the diet of the inhabitants of the African reserve areas published in over twenty years. Given the terrain, poor crop yield and the frequent droughts, it must be assumed that malnutrition and famine are present.

VALUE OF DIET

Following the examples of May and McLellan, the diet of the population must be considered as being of three different varieties: that of the white population, the laborers living below the "Redline" and the inhabitants of the African reserves.

There is no indication that the diet of the white population is inadequate and its evaluation will now be dismissed without further consideration. The diet of the salaried laborers is controlled by the employer in that meals are provided for the workers. In general the diet includes vegetables, milk, cornmeal and meat which is purchased by the company for worker consumption. The various employers obtain thousands of tons of cornmeal from the Republic of South Africa each year. There are no controlled nutrition surveys for salaried laborers but the data collected by May and McLellan in 1971 indicates that the calorie intake averages between 3,900 and 4,500 calories per day. This level is considerably higher than the minimum standard set by WHO. The average protein intake (134 g) which they reported also exceeds WHO's minimal "safe level of protein intake." The approximate nutritional value of the daily food allowance as published by the Republic of South Africa in 1959 is given in Table I. From this table it may be seen that the calcium intake is quite inadequate. No information is available on the intake of vitamins A and C. The diet outlined in the table would be low in both vitamins. The iron, thiamine, riboflavin and niacin intake is adequate.

The traditional African diet consists of wild fruit, roots, vegetables, wild animals, birds, fish and soured milk. Since the white occupation of the lower 60% of the country, the range of the black population has been restricted with a corresponding restriction in traditional food sources. As a result of the coming

of the white settlers and increasing problems with drought, the inhabitants of the African reserves have become dependent on cereals and processed foods to supplement their diet. This supplemental food is provided for the most part by the government of the Republic of South Africa.

The Ovambo of the north raises millet and sorghum on mounds between the river beds. In addition they grow corn, beans, pumpkins and watermelons. They also raise cattle though the water supply is often less than adequate. Grain banks are maintained but nevertheless famine often occurs during droughts.

The Herero are a pastoral people who also do some cultivation of the land. No survey information is available about the adequacy of their food intake.

The Nama who occupy the northeastern portion of the country continue to consume vegetables, roots and wild fruits. They also prepare a milk from gathered nuts and beans. Again, no survey information is available on the adequacy of their food intake.

There has been no survey of the diet of the black population in the reserve area since 1952 when Bronte-Stewart et al. made a study of the Kung division of the San people. This survey of approximately 1,250 individuals found no protein-calorie malnutrition or vitamin deficiency. These findings must be evaluated in the light of the author's indication that the population studied was quite likely the most healthy subgroup of the Kung.

No comparable information is available for the overall black population of which the San compose less than 3%.

As a result of such inadequate and uncertain information, few firm conclusions can be drawn concerning the nutritional states of the population of Namibia. It may be assumed that the white population has an adequate nutritional intake for the most part. Salaried laborers in the so-called Police Zone appear to have an adequate intake of calories and protein, though their need for vitamins A and C as well as calcium are not being met. Their diets in general are much more satisfactory from the point of view of nutrition than the diets of their counterparts in the reserve area. The level of nutrition in the reserve area is not known but from knowledge of the terrain, weather conditions and the restrictions on African movement, it can be assumed with significant assurity that the nutritional state is less than ideal. The country remains dependent on food import from the Republic of South Africa to supplement its food requirements which are not met by local production.

NUTRITIONAL DISEASE

The existence of nutritional diseases in Namibia cannot be documented due to lack of survey information on diet and health. It is known that regular drought and famine do occur in the reserve area and that the diet is composed principally of cornmeal,

other cereals (principally sorghum) and forage when available. The consumption of meat and dairy products is low to nonexistent for the vast majority of the population and the eating of seafood produced by the active fishing industry is minimal as the fishing industry is used to provide cash income for the economy. Given the lack of quantitative information no adequate assessment of the types and degree of nutritional disease can be made and speculative conclusions must be drawn. Protein-calorie malnutrition of some degree would be expected as would deficiencies of calcium, ascorbic acid, riboflavin, niacin, vitamin A and possibly thiamine for those individuals living on the subsistence diet described above. Those salaried laborers living in the so-called "Police Zone" and receiving company food are reported to be well nourished and exhibit a dietary deficiency only of calcium and possible vitamins A and C and no evidence of deficiency disease has been reported.

Jenkins, et al. in 1974 reported a 90% intolerance to lactose among the Kung, a division of the San, of northeastern Namibia using the glucose oxidase method of testing lactose tolerance. His sample population consisted of 40 adults. In a subsequent paper, 50% of the children and 95% of the adults of the 21 Keetmanshoop Nama tested were shown to be lactose intolerant. Clinical symptoms (acid diarrhea) were not produced in patients in either study using 50g of lactose and the lactose

deficiency at this level is strictly chemical. These findings are stimulating and may in the future bear on the nature of food supplementation to the people of Namibia, however, more extensive study is warranted. Moreover, this information should have no bearing on the feeding of milk to the nursing infant since neonatal lactose deficiency is a rarity even in black and oriental populations.

SCOPE OF THE PROBLEM

The number of Namibians who suffer from protein-calorie malnutrition or specific deficiency diseases is not known. It is certain, however, that malnutrition exists. The problem is complicated by the arid to desert nature of the terrain and the restrictions placed on black movement by the white population.

As a result of any significant degree of malnutrition, the productivity of the population decreases. Malnutrition moreover contributes heavily to increased infant mortality, mental and physical retardation and increased susceptibility to infectious diseases. The frequent lack of water results in dehydration as well as poor crop yield which contributes to the above problems.

The major component of the diet, corn, is low in protein content and deficient of the essential amino acids, tryptophane and lysine. Sorghum likewise suffers from a low protein content and insufficient tryptophane and lysine. Due to an absent,

to inadequate consumption of milk products, eggs, red meat or fish; riboflavin, niacin, vitamin A and calcium are deficient in the diet. Since fruits, both citrus and others, leafy vegetables and grasses are not plentiful, ascorbic acid deficiency will exist in a significant portion of the population. The iron content of the diet may also be low.

CONCLUSIONS AND RECOMMENDATIONS

Based on available information, it must be concluded that the basic subsistence diet of the majority of black Namibian population in all likelihood does not have an adequate source of protein, calories or several important vitamins and minerals.

Since the country cannot produce an adequate food supply this special problems exist with reference to providing adequate nutrition. The country has in the past relied on import of food stuffs from the Republic of South Africa. As the administration of Namibia leaves the hands of South Africa, the new government must seek allies to help supply food during the period of transition. This aid may be needed for up to ten (10) years. If Namibia is even to become self-sufficient in terms of providing food then investment capital must be quickly provided to begin the development of an irrigation system and initiate massive deep drilling for water. Water purification facilities should also be constructed where appropriate.

The fishing industry must also continue to be exploited without tipping the scales to the side of overfishing. Some balance must also be found between providing for the protein needs of the population with the products of the industry and maintaining the income essential for the economy which is supplied by export of seafood and processed products. The income from the mining and oil industries must be used as a source of financing agricultural ventures and direct food purchase for the population. The continuation of cattle raising and the breeding of karakul sheep should be encouraged and to this end, native ranchers should be trained and outside technical assistance obtained as needed.

A diet of adequate protein and calorie content must be provided and the high content of cereal in the present diet must be reduced in favor of a higher content of meats, fish, eggs and dairy products. The question of a high percentage of lactose intolerance in the population must be further explored. The development of winter and spring crops should be encouraged. The soil must be tested for its ability to sustain diversified crops of high nutritional value and appropriate crops should then be introduced. Soil enrichment should be instituted along with these projects directed towards increasing water supply. The consumption of green vegetables and fruits is to be encouraged as this becomes feasible. A strong active agricultural extension service should be established by the government. All these improvements hinge on establishing and maintaining a productive and stable economy.

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IDENTIFICATION OF IMMEDIATE AND URGENT CRISES
POSED BY TRANSITION IN HEALTH SECTOR

In order to identify crises which may result from transition, one only need lay bare the infrastructure to gross scrutiny. Presently, it cannot be proved as the Southwest African Administration implies, that health care is available to all indigenous people and that malnutrition is not a major health problem. This study, however, should raise questions in this regard.

It would appear that not all people do have access to health care but only a relatively small percentage of the population in the towns and as much as ninety five percent (95%) of that percentage has ready access to care. Thus, we may say that Namibia's health services lack both geographic comprehensiveness and comprehensive population coverage. Services are still concentrated in or near urban centers of predominant European populations. There is also a lack of target group comprehensiveness, e.g., school dental health for European children but not for African school children.

Foremost in the litany of crises is food. The section on nutrition deals with this problem very succinctly. According to South African sources, a great deal of the food for Namibia is imported from South Africa. Certainly, Namibia, in a re-ordering of priorities and with skillful manipulation of the economy, could supply its relatively small population with adequate food of

sufficient protein-calorie content but at an as not yet measured cost to the Gross National Product. However, an undernourished population cannot participate fully in the further development of an economy. Thus, the fishing industry which, according to South African sources, contribute greatly to the economy is also a ready source of high protein food and iodine. The animal husbandry industry also is, a source of food supply. It would be difficult to understand from a public health perspective why a state of milieu cannot be accomplished in order to achieve both ends.

The agriculture industry as well as the physical, social and economic well-being of the individual is dependent on a more available and convenient supply of water. May and McLellan (1971) state that the Cunene River Development Program was intended to supply the northwestern part of the country using a system of canals for irrigation. In addition, this project was to include hydroelectric generating plants so that water and power are available to the vast majority of Ovamboland and as far south as Windhoek. Undoubtedly, other such projects can be undertaken utilizing other nations' resources where available.

Atayi, et al. (1970) address themselves to the high costs of such projects by answering that while the construction costs of water and waste facilities may be high, one cannot measure these costs in terms of the benefits derived in regards to health and

social, as well as, economic developmental benefits.

Power requirements, as of 1974 estimates, were expected to be 120 MW by 1977 up from 59 MW in 1973. Coal is prohibitive in cost and must be imported since there are no known deposits in Namibia thus the only cheap source of energy is hydroelectric generation. The main source to supplement the country-wide power grid in anticipated requirements is the Cuene River project which is located inside Angola. Interference with this project could inhibit power and water supply to Namibia.

According to the 1974 South west Africa Survey, a communications network consisting of 28 radio receiving and transmitting sets to connect the health facilities is in operation. More of this type of communication is needed until the feasibility of telephone is ascertained.

Transportation is another enigma in Namibia. The country's road network has grown from no developed roads in 1953 to 2800 km. of tarred roads in 1973. There is a total of over 58000 km. of roads in the country today including trunk roads, main roads, district roads and farm roads. The environmental factors that must be overcome to establish and maintain roads are legion and one would expect these difficulties to increase many-fold if after transition there is not an infusion of money, manpower, and other resources to replace the alleged South African subsidies. Sand dune barriers must be located strategically in the Namib Desert to prevent inundation by sand. Undoubtedly the technology exists to deal with

these problems but not without competent engineering assessment.

The list of environmental hazards is headed by malaria, a disease which has required one hundred percent (100%) surveillance in endemic areas such as the northern territories and the Caprivi Strip. Administration sources state that the incidence is below two percent (2%) as determined, probably, by blood smears.

Any lapse in tuberculosis control would be devastating as this is another major disease in Namibia. There must be a continuing program of detection, vaccination and treatment of the disease as well as the preventive and educational aspects.

Namibia may be classified as being the southern terminus of the "meningitis belt" and therefore, surveillance must be maintained for this disease as well as the ever-present threat of cholera from the north. Yellow fever must be kept from Namibia by surveillance and vector control.

The Caprivi is located in the tsetse fly area and control must be maintained to control the parasite as well as the vector since the disease affects cattle as well as man.

Immunization programs must be maintained to prevent epidemics of polio, tuberculosis, diphtheria, tetanus and pertussis.

In other words, the status quo must be maintained insofar as existing activities are concerned and this necessitates adequate funding, manpower, and facilities. The training of personnel should be done as close to actual theatres of operation as possible

in order to facilitate training by (1) having trainees see actual conditions, and (2) not over-training. The latter is likely to occur if training is done outside of the Region.

The possibility of ethnic strife looms more likely in Namibia than in Zimbabwe as the indigenous peoples of the former are more diverse in culture and history and reside in more geographically demarcated territories.

Since the organization of health services by the government is essentially an offshoot of one or another of the South African bureaucracies, it will be necessary to organize a health ministry cognizant of the human needs of this population less than one million. Very little is known of the organizational structure at present.

Transportation problems can be overcome in the interim by appropriate land and air means, that is large helicopters, other air transport and all-terrain vehicles. Efficient transportation is a problem now and can only deteriorate if appropriate measures are not instituted in the peritransitional period.

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CATALOGUE OF HEALTH RESOURCES CONSEQUENCES

The areas to be studied are categorized as follows:

A. Environmental

1. Water supply and waste disposal--grossly inadequate now,
2. Energy supply - depends on Angola and South Africa for grid,
3. Transportation - heavily subsidized by South Africa, according to government sources,
4. Housing - inadequacy unquestioned,
5. Food - inadequacies; urgent measures need to be instituted.

B. Preventive Services

1. Continuation of vector control - must be maintained and up graded,
2. Immunizations - under-utilized at present as preventive medicine measure,
3. Health Education - according to government sources, is part of school curriculum,
4. Disease surveillance - must be maintained and upgraded.

C. Curative Services

1. Maintenance of facilities - anticipated initial over-utilization due to influx of rural migrants,
2. Decrease maldistribution of services - reorganization,
3. Strive to overcome the lack of:
 - a. Geographic coverage or comprehensiveness
 - b. Comprehensive population coverage
 - c. Target-group comprehensiveness
 - d. Comprehensiveness in disciplines.

In the environmental sector, we can expect the following to occur peritransitionally.

The already inefficient water infrastructure has possibilities of becoming more compromised by problems with Angola (Cunene River Project). This would have impact on both water and energy supply to a significant area of the country. The only city known to have sophisticated sewage treatment is Windhoek where treated sewage effluent is being used as a source of water presumably for non-human consumption purposes.

The same holds true for power since appropriate water supply is essential for hydroelectric power generation.

Transportation links would have to be maintained for transport of food, medical supplies and other essential. According to the 1974 Southwest Africa Survey this now is a losing arrangement and must be subsidized by the South African government. Without financial and technical aid, the simple transportation network would deteriorate thereby compounding the health problems that exist now. Perhaps the large helicopters of the "Jolly Green Giant" species would be able to operate economically in the event of disruption of ground transportation. The rail transport system suffers from the same problems as truck, i.e., poor roadbed, desert sands, local climatic conditions.

Food supply and distribution would be affected by all of the above and other factors. In this transitional stage, we have already

alluded to a possible reordering of priorities, i.e., to feed people with high protein seafood versus continuing to utilize this "cornerstone" of the economy as a large contributor in the Gross National Product. The building of dikes in the Caprivi Strip has possibilities of inducing ecological change and making that area more productive but this may have adverse effects on the neighboring countries. Irrigation of semi-arid lands, to make them more arable, would be contingent on canal systems and this could be a feasible source of water for all purposes. Of course these irrigation schemes in endemic areas lend themselves to the re-introduction of schistosomiasis. Personnel, trained for the continuation of the present system, are needed.

In addition to continuing vector control, immunization programs, health education, MCH programs and disease surveillance, the preventive difficulties will be contingent upon availability of personnel and equipment as well as being overloaded with refugees from rural areas. To prevent disease spread, adequate water, waste disposal, food, clothing and shelter are essential.

The curative services, which are now disproportionate to the needs of the whole population in distribution and amounts of services to the European population, will initially be drawn on heavily, particularly if any fighting takes place. The facilities must continue to operate with appropriate manpower. Services will have to be made available at the periphery in order to stem the influx of rural inhabitants to the towns.

In the existing situation in Namibia, it would appear that the problems cannot be resolved without appropriate input into the infrastructure to bolster the country.

Specifically, qualified personnel would have to be imported from neighboring countries or from abroad. The Namibian nation will require a great deal more money from Zimbabwe if South African references are accurate, i.e., regarding large amounts of subsidies from the South African government for transportation, food, etc.

INFORMATION GAPS

1. Specific numbers and ethnicity of health professionals by category.
2. Location, size and capabilities of each health facility.
3. Location and capacity of existing sewage and water treatment facilities regardless of size.
4. Up-to-date morbidity and mortality data.
5. Organizational structure of Southwest Africa Administration Health System.
6. Lack of published literature relating to socioeconomic or health status of indigenous peoples.
7. Health expenditures, actual, in Namibia.

Recommendations

A. IMMEDIATE

- I. Sanitary engineering survey in conjunction, for efficiency, with Civil Engineering survey for hydro-electric, roads and water.
- II. Institution of a biostatistical gathering system.
- III. Marshalling of health professional contingents from neighboring countries or abroad to buttress and augment existing personnel.
- IV. Establishment of an immunization program immediately.
- V. A nutrition survey to identify the most appropriate means of alleviating food problems. This should be done in conjunction with agronomy and other agriculture and marine scientists.
- VI. Temporary refugee settlements with appropriate public health measures.
- VII. Continued surveillance for communicable diseases.
- VIII. Increase capabilities for curative services for initial increased case load.

B. INTERMEDIATE

- I. Organization of health services delivery system.
- II. Epidemiologic survey.
- III. Institution of APA (Accelerating peripheral augmentation) system of health delivery. (See Zimbabwe report)
- IV. Joint projects with other disciplines regarding roads, water, power, communications.
- V. De-emphasis on curative services with increase in preventive and educational services.

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