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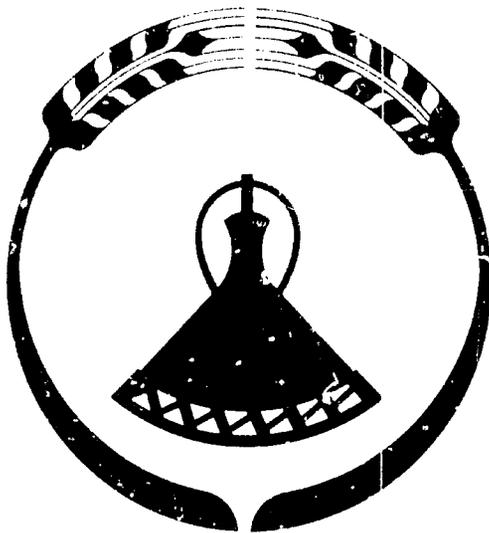
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RESOURCE GUIDE FOR NUTRITION
PLANNING IN LESOTHO

Jim Anderson
Nutrition Consultant

LASA Discussion Paper No. 6

**LESOTHO
AGRICULTURAL SECTOR
ANALYSIS PROJECT**

**Ministry of Agriculture
Kingdom of Lesotho
Department of Economics
Colorado State University**

RESOURCE GUIDE FOR NUTRITION
PLANNING IN LESOTHO

by

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LASA Discussion Paper No. 6

Lesotho Agricultural Sector Analysis Project

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I. GOOD NUTRITION - A BASIC PLANNING GOAL FOR THE AGRICULTURAL SECTOR

Evidence is presented in this discussion paper that indicates the possibility of serious nutritional imbalances in the Basotho population. For instance, 20% of under-five children are reported to be stunted and chronically malnourished, 25% are said to be anaemic, 13% of mothers are obese, and 33% of households are estimated to have insufficient income to provide a satisfactory diet for the entire family. If further research confirms the existence of these problems, then nutritional impact must be considered as one of the most important dimensions against which to evaluate agricultural program options, and a traditionally production-oriented agriculture sector will need to develop goals to meet consumer-oriented nutrition problems in Lesotho.

The Government's Second Five Year Plan (Vol. 1, 1975, p. 22) stresses the need to focus attention on nutrition as a major aspect of health care, and in a policy speech of May 1978, the Prime Minister announced that he was creating a new unit in his offices, the Lesotho Food and Nutrition Council. This unit, headed by a Cabinet subcommittee comprising the Ministers of Agriculture, Health, Education and Rural Development, was established to coordinate over 50 ministry, donor, and voluntary agencies with activities in food and nutrition towards a common purpose of optimizing the nutritional status of the Basotho. The Council has been established with advice from Planning Assistance Inc. (under a USAID grant) and is making full use of management by objectives techniques. With the services of its advisory Group and Secretariat (the Food and Nutrition Coordinating Office, FNCO), the Council will formulate nutrition policy options for Lesotho.

Food and nutrition are the concern of specialists in at least ten major disciplines: Agriculture, Food Technology, Dietetics, Economics, Community Development, Psycho-social Studies (with special reference to the roles of tradition and culture), Political Philosophy, Education, Biochemistry and Health. For a complete list of 63 different agencies or departments that are involved in food and nutrition programs in Lesotho (together with the names of key contact persons), and for an up-to-date bibliography, see Appendix A and Appendix B, respectively.

II. BACKGROUND

The history of nutrition in Lesotho is reminiscent of a journey across the country from West to East, moving from the Lowlands across the Foothills and up into the Maluti Mountains. There is an overall ascendancy in nutritional levels, halted by two periods of descent (between 1850 and 1890 and again in the first half of the 20th century). Between the ascents are long periods on minor plateaus. The majority of the population still have not reached the peaks!

Moshoeshoe's Call for Foreign Aid

After Moshoeshoe the Great had successfully consolidated the Basotho nation on his Thaba Beciu mountain fortress and had brought them some respite from the precarious food position of tribal warfare, he made his first request for foreign aid. The missionaries he requested brought him the first schools, the first medical doctor, the plow and wheat-growing. Sorghum (*mabele*) and wild spinach (*muroho*) were probably the true Basotho foods of that time; maize came in a little later with the traders. The wheat proved very successful.

By 1886 over 120,000 bags (about 6,000 m.t.) were being exported to the South African diamond fields in spite of the fact that many of the previous wheat fields had been lost to the Free State Boers in 1866 (Ashton, 1939). What was originally regarded as a cash crop, later became part of the diet - partly because Moshoeshoe put Lesotho under the protection of Queen Victoria (in 1868) and the colonial era commenced, along with its bread, tea and sugar.

The first medical doctor was Dr. Prosper Lautret who arrived in Lesotho in 1844, just 11 years after the original Paris Evangelical Missionary Society team led by Eugene Cassalis. The second medical doctor was the son of Cassalis, who was born at Morija. The Anglican Church set up the first medical mission at Mohale's Hoek in 1889, but it was 1916 before the first Mosotho, Dr. Wilson Sebete, qualified in medicine. Mission hospitals and clinics spread in the 1920's with the arrival of Canadian catholic priests. Traditional healers continued to treat most of the ills of the people, but alongside this system developed what appears to have been a rather well supported Basutoland Medical Service which the British administration started after the 1880 Gun War and the unsatisfactory period of Cape Rule. Funds were low, but a system of dispensaries and modern hospitals was built up, largely supported by revenue from dispensary visits at 1 shilling per time, probably equivalent to R3 today. By 1910, 500,000 people (over a period of a decade) had been vaccinated against smallpox, and hospitals had been built at Maseru, Mafeteng, Mohale's Hoek and Leribe.

In 1876 some fears were expressed over the large amounts of beer consumed (Macfarlane, 1934). However, by the early 1900's the Basotho

were generally considered to be of strong and healthy physique, and this was attributed partially to a healthful climate and partially to the availability of beef and game in the diet. Population was about 400,000 and the national grassland of Lesotho was still very much in evidence. The troubles came in the wake of smallpox control and similar measures, which, despite the lives they saved, resulted in population increase and the phenomenon, common to other African countries of the development of an over-populated and under-nourished nation.

A New Kind of Starvation Develops

Probably one of the earliest records to sound a note of alarm on the deteriorating situation in the 20th Century was the 1925 Annual Medical and Sanitary Report (the Principal Medical Officer, 1926), where it was noted: "The general health of the territory is good but...diseases of the digestive system predominate in the returns, due in great measure to an almost unvarying diet of mealie meal...Efforts are being made to induce the Basotho to grow peas, beans, cabbages and other vegetables...scurvy is apt to appear in the spring of poor seasons when no green food is to be had."

By 1932, pellagra (*lefù la poone*, the disease of the mealies) was being brought to the attention of the medical authorities with its three classic symptoms: dermatitis, diarrhoea and dementia ("the three d's"). In 1936 H.E. Ashton produced his "Sociological Study of the Sotho Diet" and reported that pellagra was now widely recognized. Following the droughts and serious crop failures of the 1930's, a 1938 "Summary of Information regarding Nutrition in the Colonial Empire" (E.A.C., 1938) raised some of the urgent issues that

we are familiar with today: "Malnutrition is seen in every village dispensary, school and recruiting office", "the root cause is over-population" (now quoted as 560,000, or a little under one-half of Lesotho's 1976 population of 1,200,000) and "the question of food-stuffs and nutrition is one of the most important problems that have to be faced in Basutoland". In Ashton's study we first learn of the deleterious effect of migration to the South African mines on the agriculture, also of the attempts of the administration to increase production by "extensive anti-soil erosion work". Added to this the Year of the Red Dust (1933) had precipitated a food crisis. Thus, crop failures, a growing population, under-production, soil erosion and natural disaster had all worked to create an ecologically unstable environment and a new downward trend in nutritional status. While efficient, "once-only" medical care was saving the lives of thousands, it was resulting in substantial population pressure on land resources which were not being developed to keep pace with the increasing demand for food. There was, at the time, no concept of preventive health care.

In 1948 kwashiorkor was first recognized in Lesotho by Dr. White-worth. This is a disease of chronic protein deficiency often found when a baby comes off the breast. Although it gets adequate energy from a starchy maize diet, it is deprived of the essential protein needed for its growth. Stunting is the result, plus vomiting, diarrhoea, cracked lips and skin, hair color changes, and a swollen body with a characteristic pot-belly in severe cases. Dr. Underwood Ground reported 25 cases in 1949. There was another startling increase, in 1951, in the incidence of pellagra (now discovered to be due to

a lack of the vitamin Niacin, which although present in maize, is chemically bound and unable to benefit the body - unless released for example by treatment of maize with lime, as is found in the preparation of the Mexican *tortilla*). There was also a general increase in other vitamin-deficiency diseases (or avitaminoses) when the wheat and maize crops failed in 1951.

The First National Nutrition Survey and the Initiation of an Applied Nutrition Program

In 1954 the Territorial Administration called in outside help which resulted in the landmark Basutoland Nutrition Survey of 1956 to 1960 by Dr. J.A. Muncz and Miss M.M. Anderson. The Survey reported (p. 53) that the Basotho diet was deficient in calories, protein, vitamin A, riboflavin, niacin, calcium and iodine, but adequate in vitamin C and iron. The result was that 30% of all children were underweight, 15% of the population (now nearly 800,000, ~~in 1960~~) was suffering from pellagra during the October to February summer season, and 15% had obvious goitre (caused by iodine deficiency). Now followed a time of upward progress as the Survey's recommendations were implemented, and, through the agencies of FAO and UNICEF with the active support of Save the Children Fund, the Applied Nutrition Program (ANP) was set up in 1962. A coordinating body, the Permanent Bureau of Nutrition, was set up and with much enthusiasm helped initiate programs of school-feeding, poultry production and village gardens, accompanied by nutrition education for teachers, young farmers and rural women. The first phase lasted until Independence in 1966. Ms. A. Hlalele, former Head of the Home Economics and Nutrition Section of the Ministry of Agriculture, confirms the favorable reports

given by FAO adviser, Betty Crock, on the results of the programs. Miss Crock had introduced many new ideas, but had been careful to train Basotho colleagues in their implementation and to phase out her initiative. Miss Crock described the ANP as "promising and allowing optimism about continued success" (Crock, 1966).

On the strength of the initial success, UNICEF and FAO agreed to extension of aid for a Second Plan of Operations for a third in 1966 and 1967, respectively. A "Fourth Planops" was also drawn up for implementation up until 1971, but was interfered with by the Political Emergency of 1970. In the early '70's the Permanent Bureau suffered a decline and the problem was seen to be its lack of direct links to any policy-making body in Central Government. In 1974 steps were taken to propose its reorganization.

The New Initiative of 1975

1975 marked a new high-point in the history of the institutionalization of nutrition efforts when the Government organized a well-attended and warmly-received National Nutrition Planning Seminar at the National University of Lesotho, with the assistance of Planning Assistance, Inc. supported by a USAID grant. Some 100 delegates attended from 30 or so departments and organizations working directly or indirectly in the nutrition field in Lesotho. From a process of collaborative planning (with a review session in 1977) they recommended coordinated action to set up a new Lesotho Food and Nutrition Council falling directly under Cabinet with power to formulate policy and coordinate programs in the areas of food production, distribution, consumption/utilization, nutrition education, and food and nutrition research. After considerable delay, the Secretariat of the new Council,

the Food and Nutrition Coordinating Office, was finally staffed in December 1977 and is now ready to play its role in bringing together the programs of Government Ministries and donor and voluntary agencies.

The 1975 conference was also acutely aware of the need for fresh data on the nutritional status of Lesotho. In response to this, two major surveys were carried out in 1976 - the Food System of Lesotho Study and the Lesotho National Nutrition Survey. The results of these surveys indicate that there has been an improvement since 1956: although there is not strict comparability between samples, it appears that the average under five child has increased in height by 2 cm. and in weight by 1 kg. Also the incidence of goitre in mothers has dropped from 15% to 5%. However, the Nutrition Survey shows that 20% of children under five are still chronically malnourished and below their full growth potential, and that 25% appears to be anaemic.

III. BEST AVAILABLE INFORMATION ON THE INCIDENCE OF NUTRITIONAL DISORDERS

The general picture to emerge on the nutritional status of the country, in the absence of National Food Consumption Survey data, is that while the more dramatic presentations of malnutrition (e.g., the pot-belly skin and hair changes of "florid kwashiorkor") have low incidence, there exist various degrees of nutritional disorder in approximately 1/3 of the nation's families. Thus, there is a large portion of the nation below optimum strength and a potential for crisis should food supplies diminish.

In the event the delicate balance between agricultural production, food imports, food aid, miners remittances and population growth is

upset, there are certain sub-groups of the population who are generally the first to experience hunger and the debilitating sicknesses of a malnourished body. These groups are said to be the "at-risk groups", e.g., children under five years of age, expectant mothers, families of crippled miners, etc. The best available information on the universal sets, children, mothers, families, may be summarized as follows:

Children: 20% of under fives are chronically malnourished and below their full growth potential (11% in Maseru; 25% in the mountains). (UCLA, 1976).

Mothers: 5% are undernourished (but 21% are obese!). 5% are suffering from goitre (was 15% in 1956). (UCLA, 1976).

Families: 33% of all families probably experience a shortfall in their basic energy requirements (in 1976 they received a monthly income in cash and kind of less than R40 per month for a 4.3 member household). (CU-NUL, 1976).

For the Nation as a Whole

The latest available returns from clinics to the Statistics Unit of the Ministry of Health (1976) show only the general category "malnutrition and avitaminoses" without specifying which nutritional disorders are involved. A simple analysis of attendances at clinics and out-patient departments of hospitals, expressed as a percentage of the population of each district in which the facilities are located, provides some idea of the districts that are worst affected by malnutrition. However, skill in diagnosing malnutrition may not be uniform across the districts and attendance may depend largely upon accessibility of facilities. Thus, incidence of reported malnutrition may be a poor indicator of actual severity of malnutrition in a region.

Table 1. Percent Incidence of Reported Nutritional Diseases by Age Group and District, 1976

Age Group	Maseru	Berea	Leribe	Butha Buthe	Mokhotlong	Qacha's Nek	Quthing	Mohale's Hoek	Mafeteng	All Lesotho
0- 5	0.16	0.14	0.88	0.72	0.09	1.14	0.16	0.36	0.93	0.50
5-25	0.22	0.19	1.05	0.43	0.01	2.23	0.53	1.06	0.82	0.68
25+	0.74	0.42	0.99	0.62	0.27	1.42	0.78	3.11	1.56	1.12
Totals	1.12	0.73	2.92	1.77	0.46	4.79	1.47	4.53	3.36	2.30

Data derived from unpublished material in the files of the Statistical Unit, Ministry of Health.

Conclusions:

1. Highest incidence of malnutrition appears to be in a band across the mountains in the south of Lesotho in the districts of Mafeteng, Mohale's Hoek, and Qacha's Nek.
2. That more adults are reported malnourished than children may reflect clinic attendance characteristics rather than actual conditions.
3. The clinic records for the under fives reflect largely the incidence of florid malnutrition with its clinical signs of skin lesions and hair changes. Anthropometric survey results reflect both chronic and florid malnutrition as determined by stunting (height for age less than 85% of the U.S. National Academy of Sciences standards). The percentage of under fives reported at clinics as malnourished (0.5%) is so low compared with the survey findings (20%) that it seems likely substantial numbers of malnourished children are not being reported or reached by clinic services.

Identification of the At-Risk Groups

It is essential that the at-risk groups within these universal sets of the population be more specifically identified so that 1) measures can be taken to alleviate their immediate distress and 2) policies formulated for the development of the population as a whole can include measures to specifically eradicate the causes of the problem. In addition, there is need to specifically define the at-risk groups in terms of their real and potential nutritional disorders and their correlations with various geographic and socio-economic parameters. With limited resources, sound planning dictates that groups be targeted for specific action approaching from several perspectives simultaneously. Correlates of child malnutrition revealed so far by the Lesotho National Nutrition Survey and the Food System of Lesotho Study, and by clinic and hospital returns of the Ministry of Health are summarized below as the "10 M's". Except perhaps for missing foods (e.g. meat/legume relish, milk) none of these factors by themselves are highly correlated. However, if more than 5 of the factors are present in one child's life it is highly likely that the person is already suffering from some degree of malnutrition and is a member of an at-risk group.

Mountain-dweller (especially in a band across Mafeteng, Mohale's Hoek, and Qacha's Nek).

Miner-father (father absent in the mines of South Africa).

Moneyless (total household budget of less than R40 per month in 1976 figures, i.e., less than US\$46 per month).

Months: 6 to 24 in age (the crucial weaning period).

Male child.

Mother illiterate.

More than 4th child in the family.

Mis-spaced births (less than two years between a child and its following sibling).

Meat/legume relish usually missing in the diet (maybe the lion's share is given to the father).

Milk missing from diet (e.g., failure to receive MCH/CRS food aid or milk from a village store).

IV. PER CAPITA FOOD CONSUMPTION

The Food System of Lesotho Study and National Nutrition Surveys confirm that the basic diet for more than 90% of the population (i.e., the rural sector) is still very limited in its variety of foods. The main daily dish for thousands is still two or more cupsfuls of stiff maize porridge (*papa*) together with a meat/legume relish, or, more often, a green vegetable (*marcho*) relish. However, the crucial issue of how much is eaten is still not resolved and awaits the results of the proposed National Food consumption and Household Budget Survey for which the Bureau of Statistics is presently seeking assistance.

The following sources of data give only a little help in assessing quantities and are laid aside at present for the following reasons:

- 1936 - Ashton's Sociological Survey of the Basotho Diet (too old).
- 1956 - Basutoland Nutrition Survey (too old).
- 1969 - Rural Household Budget and Consumption Survey (too old).
- 1973 - Pilot Survey on Population and Food Consumption (self confessed doubts over high consumption figures).
- 1975 - Poverty Eats My Blanket (figures for a favored 3% of population, Maseru).
- 1978 - Labor Construction Unit Nutrition and Productivity Questionnaire (data collection not complete).
- 1978 - Synectics: Investigation of the Effect of Road-to-Health Charts (data analysis not complete).

In the absence of national research data, interpolations will be made using the following three sources:

- 1977 - Attitude Survey on Senqu Project Area Farmers (unpublished data gathered by J. Gay and T. Guma from a sample of 100 "ordinary" and 48 "progressive" farming households in Mophale's Hoek district. Only a few commodities were investigated).
- 1972-1974 - FAO Food Balance Sheets for Lesotho (average figures for "apparent consumption" calculated by use of available statistics and estimates in the equation: Consumption = production + imports - exports - changes in national stocks - local non-food use).
- 1976 - Urban Household Budget Survey Calculations. The Household Budget Survey (1972/1973) gives the amounts spent on different food commodities by different socio-economic urban groups. Use of '72/'73 price lists enables quantities to be calculated. Transposing to a national aggregate for 1976 comes by appropriate equating of the national model household to the socio-economic urban group with the same (low) purchasing power. For details of the calculations see Appendix C. The 1976 income in cash and kind, for the national model household, based on the findings of the Food System Study, was assumed to be R570 p.a. for a 4.3 member household and the household was consuming R25 of food per month out of the budget of R47.50 per month, c.f. a poverty datum line of about R96 per month (Marres, van der Wiel, 1975).

Table 2. Various Average Daily Per Capita Food Consumption Estimates, by Commodity, 1976
(per capita grammes per day).

Food Commodities By Food Group	J. Gay & T. Guma '78 Ordinary Households	J. Gay & T. Guma '78 Progressive Households	FAO '72-'74 Average Food Balance Sheets (figures rounded off)	1976 House- hold Budget Calculations	A Recommended Average Diet for Lesotho Based on FAO Nutrient Requirements
<u>Body Builders</u>					
Milk	n/a	n/a	40	50	80 (1/12 litre)
Eggs	n/a	n/a	3	3	15 (1/4 egg)
Meat/fish	90	190	60	20	30
Beans/peas	20	50	20	2	30
<u>Disease Preventers</u>					
Vegetables	n/a	n/a	50	90	120
Fruits	n/a	n/a	40	10	30
<u>Energy-Producers</u>					
Maize	100	210	250	270	180
Sorghum	80	140	100	50	60
Wheat	16	90	150	150	100
Potatoes, etc.	1	5	20	30	30
Sugar	n/a	n/a	30	40	30
Oil/fat	n/a	n/a	4	4	10
Luxury foods	n/a	n/a	100 (1)	25 (2)	? (3)
<u>Flavorings</u>					
Tea	n/a	n/a	n/a	1	3
Salt	n/a	n/a	n/a	6	5

Notes: (1) Reported to be mainly beer (*joala*). (2) Sweet stuffs, soups and baby foods - beer has been counted as 30g sorghum. (3) Luxury foods can substitute for sugar or cereal.

Sources: Gay, J. and T. Guma, 1973. Attitude Survey of Senqu Project Area Farmers, FAO. Maseru
Narain, R.D., 1978. FAO Provisional Food Balance Sheets, 1972-1974 Average, FAO. Rome.
Anderson, J.H., 1978. Calculations Based on Bureau of Statistics, 1973, The 1972/73 Urban Household Budget Survey Report, Maseru.
Anderson, J.H., 1978. Calculations based on FAO/WHO, 1974. Handbook on Human Nutritional Requirements. FAO Nutrition Series No. 28. WHO Monograph Series No. 61. Rome.

For comparison with these figures a possible model average diet has been drawn up based on latest FAO/WHO recommended daily allowances of nutrients, and allowing for perceived realities of the Lesotho agricultural, economic and geographical situation. It should be borne in mind this is a recommended diet averaged over all Basotho household members (see CU-NUL, 1978, p. 91 for the weighting factors for individual household members).

Conclusions:

1. The discrepancies between the three sets of consumption figures point out the need for the proposed National Food Consumption and Household Budget Survey. Some comments on the discrepancies may be attempted:
 - a. Beans/Peas: The Gay/Guma figures act as a check on the assumption that a low socio-economic urban situation can be transposed to a largely rural aggregate. Beans and peas are available for direct farm consumption in mainly rural areas - thus national beans/peas consumption is more likely to be of the order of the "ordinary farmers" 20g./day, as indicated by the FAO figures also.
 - b. Meat: The higher meat consumptions from the Mthale's Hoek ordinary farm household figures compared with household budget calculations is possibly a local phenomenon. In spite of the fact that the FAO Food Balance Sheets are in agreement with a higher figure, aggregating these figures to a national total would mean that approximately 40,000 MT of meat are being consumed annually. Such a figure seems unlikely because of cost, and also in the

face of recent Bureau of Statistics figures on commercial meat production (a mere 112 MT in 1976) although it is not known exactly what fraction of total production this accounts for.

- c. Maize, Sorghum and Wheat: Low maize, sorghum and wheat consumptions for the Mohale's Hoek ordinary farm household would seem to be more in agreement with the National Nutrition Survey's findings on wasting (i.e., 25% of under fives have low weight for height) and also with comments of health workers in clinics and hospitals. Since the National Survey also reported obesity (13% of mothers are overweight), the problem is one of variations about a mean as far as cereal intake is concerned.
2. If the Household Budget Calculations are taken as the "least unreliable" average for the nation, the average diet contains about 2100 kilocalories (8.0 MJ) and 41 g. protein. This means it is more than adequate in energy, but barely sufficient in protein (the recommended average diet contains 1800 kilocalories (7.2 MJ) and 42 g. protein). However, the diet is also deficient in calcium, vitamin A, riboflavin and niacin. The chief problem for the at-risk groups is: how much variation is there about this mean diet?
3. In the opinion of the author, the 104.8 g./day average per capita beer consumption might represent a substantial alcoholism problem among limited sections of the community. Those affected suffer a further nutritional imbalance in an already deficient diet. This was cited in the 1956

Nutrition Survey (p. 55, Munoz and Anderson) as a "major public health problem". More research is required on present consumption patterns and on the nutritional value of beer consumed.

V. THE STATUS OF CURRENT NUTRITION PROGRAMS

The Lesotho Food and Nutrition Council (LFNC) and its Secretariat, the Food and Nutrition Coordinating Office (FNCO).

The LFNC was established in October 1977 for the general purpose of optimizing the nutritional status of the Basotho through coordination of all activities directly or indirectly related to food production, food distribution, food consumption/utilization, nutrition education, food and nutrition research and food and nutrition policy formulation. Its four sections are linked together through the Deputy Senior Permanent Secretary. They are the Cabinet Sub-committee, the Secretariat, the Advisory Group and the Technical Resource persons. Its comprehensive program has been planned for two years using "management by objectives" techniques around four goals:

- 1 - To formulate nutrition policy and recommend nutrition laws and regulations.
- 2 - To coordinate planning and implementation of food and nutrition programs.
- 3 - To follow up and assist the implementation of food and nutrition programs.
- 4 - To evaluate nutrition program effectiveness.

The Advisory Group of the LFNC will help formulate policy options in all matters relating to food and nutrition for consideration by the Cabinet Sub-committee. The Secretariat, Food and Nutrition Coordinating

Office, is not to take over food and nutrition projects, but rather to work closely with those agencies with responsibility for them, and to provide planning assistance and coordination with whatever help is required from other agencies - and to respond to the repeated call for coordination heard at the 1975 conference.

Pre-School Clinics

Latest 1976 Population Census releases indicate that there are now 186,000 under five children in the country. Catholic Relief Services (CRS) supplies supplementary rations to 50,000 of them, along with their 38,000 mothers on a monthly basis at 63 out of Lesotho's 145 clinics and outstations. It is a joint project with the MOH Maternal Child Health (MCH) Department. Health and nutrition lectures are given and the weights of the children recorded on a take-home "Road-to-Health" chart. CRS food supplies are at present under-utilized and may also go to help feed children at kindergartens run by the Lesotho Council of Women.

Primary School Feeding

Save the Children Fund continues to play a major role in the viability of primary school education in Lesotho. Since 1962, using WFP food aid, they have annually distributed school feeding for up to 170,000 out of 200,000 pupils, at 760 schools. They have attempted to provide clean water systems and school gardens wherever possible, but a recent survey indicates that only 15% of schools use the gardens successfully.

Secondary School and Institutional Feeding

World Food Program (WFP) also provides food aid for Secondary and High Schools, and hospitals. Fees levied on the schools and

hospitals for this service are afterwards returned to the Government for use in a savings fund for capital development of the institutions involved. Recently funds have been allocated mainly for agriculture and school feeding projects. WFP Rome has recently approved a suggestion to try and phase out secondary school feeding by 1980 and to use the remaining savings funds to employ school gardeners to help expand school food production.

Food-for-Work-Projects

WFP and CRS continue to supply food aid packages for road building, dam building, soil conservation and fish pond projects. CARE plans to use these services to build bridges and mountain access tracks. Altogether 10% of Lesotho's total food consumption is from food aid. For example, in 1974 CRS supplies food to 74,000 self-help workers and 300,000 of their dependents. Questions have been raised as to whether this pauperizes the people and acts as a disincentive to their own food production activities; further research is needed to clarify. Allocation of food aid is handled by a special Food Management Unit (FMU) recently created (along with FNCO) in the Prime Minister's offices.

Mountain Region Food Reserves

Eight mountain sites have been chosen and stores built to hold 5,000 MT of reserve foods. Presently they hold 3,000 MT of whole grain maize, purchased from Botswana, in case of emergency - from crop failure, flood, snow, or sudden return of the miners from the Republic of South Africa. Food stores will be rotated every year and their contents sold. In a crisis, food may be given out free. The acceptability of alternative reserve foods (e.g., wheat or yellow maize meal) is being investigated. This is a joint project of Co-op Lesotho and WFP, under the management of the FMU.

Home Economics Extension Work and General Nutrition Education

A "Current Status of Nutrition Education in Lesotho" Survey has already been carried out by the LFNC and it concludes that some 50 agencies are using about 1000 resource centers (i.e., places of contact with the public: schools, clinics, nutrition centers, etc.) to reach only 25% of the nation with basic information on the "Three Food Groups" and how to improve one's diet. It further concludes that one of the largest inputs on the MOA side is from the Nutrition Section, and on the MOH side from the CRS/MCH pre-school clinic program. Both these groups present lectures and demonstrations. In general, food aid activities, especially food-for-work, are not being used as vehicles for nutrition education as they could. Agricultural Information Services and the Lesotho Distance Teaching Center are specializing in the development of educational materials for the public. UNICEF has been generally supporting the material and training needs of the Home Economics Extension Agents since 1962, and now proposes giving assistance to NTTC to train "intern teachers" (those doing a year of teaching practice during their second year of college) to run nutrition courses in local villages. CARE is prospectively interested in using expertise gained in other lands to organize a large nutrition publicity campaign. Commercial wholesalers such as Nutrition Corporation of Lesotho ("Ipepeng") and Maluti wholesalers have proved the value of taking nutrition demonstrations to the public, by boosting their sales of texturized vegetable protein (TVP) foods. Sales figures for Ipepeng (formerly "Kupugani") for 1975/76 show an increase from R28,000 to R50,000.

Nutrition Training

The LFNC survey of nutrition education also covers nutrition education of trainees. There are a total of 34 tertiary training centers that offer nutrition training in their courses (NTTC, NUL, LAC, etc.) plus 12 secondary schools that offer Home Economics as a subject. Most of these courses also feature a distinct agriculture component. A report by Professor Truswell, FAO consultant, deals with opportunities for advanced professional training and recommends links with universities in Kenya and England for Basotho to train in food technology and quality control. World Bank is prospectively interested in funding (for about R 7M, with GOL contribution of R0.5M) a massive expansion of agricultural training and extension over the next decade which would involve upgrading of LAC and 5 farming training centers and provisions for a B.Sc. in agriculture at NUL. LAC has already started its new diploma in agriculture courses and has plans for a new home economics block with British funding. NTTC has just opened theirs which was sponsored by DANIDA. All NTTC student teachers take courses in nutrition, and specialist teachers take courses in agriculture and home economics. Thaba Khupa Farm Institute has evaluated their particular training program and found that 30 out of 35 of their first graduates have taken up agricultural careers, with 23 working as farmers in their home villages using their acquired skills.

Nutrition Research

FNCO has set up procedures for collecting and monitoring all program information in the country, and research preparations are underway to set up a Food and Nutrition Resource Center (containing a library, information service and files on operating programs). A

meeting has been held to expedite the proposed 1980 National Food Consumption Survey, and a FNCO Nutrition Coloring Book for primary schools is being evaluated by the Lesotho Distance Teaching Center. Synectics Corporation is just completing a year-long longitudinal study on the educational impact of the "Road-to-Health" growth chart used in MCH clinics, and CRS, with the Ministry of Health, is proposing the introduction of new charts which will serve as a nutrition surveillance system for young children in situations of nutritional vulnerability.

VI. SUGGESTED NUTRITION POLICY ISSUES AFFECTING THE AGRICULTURAL SECTOR

If good nutrition for the whole nation is accepted as a basic planning goal, three policy issues become fundamental:

- How can the at-risk be educated to make best use of limited food resources? (Nutrition Education and Training).
- How can available food supplies be more equitably distributed? (Distribution and Marketing).
- How can food production be influenced in favor of a more nutritious pattern? (Food Production).

For such goals to be accepted there needs to be prior agreement on planning criteria and on coordination of planning activities to resolve the policy issue: Which goals take priority in agricultural planning? (Nutrition Policy Research and Formulation). A WHO-sponsored format for multi-sectoral food and nutrition planning has been incorporated in the FNCO Plan of Work and will come under review at the next National Nutrition Conference in November 1978 (to be held under the auspice of the LFNC) and in the meetings of the National Nutrition Advisory Group.

Other basic policy issues affecting the Agricultural Sector include:

- the emphasis of nutrition efforts, the focus on the nation as a whole or on the at-risk groups. (Reaching the At-Risk).

- the nutritional implications of subsistence versus commercial production (Food Production).
- the ramifications of capitalization of agricultural food production (price-support plans, subsidized inputs, etc). (Food Production)
- decreased dependency on South Africa through import substitution or changes in consumption behavior (Food Production).
- positive and negative impact of establishing standards legislation (Food Standards Legislation).
- food aid as a direct measure against under-nourishment versus the disincentives it brings to domestic production (Food Aid).
- feasibility of local manufacture of food products, especially those that contribute most directly to improved nutrition (e.g. weaning foods) (Appropriate Technology).
- reduction of food losses by improving harvesting techniques or by improving food storage and preservation (Appropriate Technology).
- feasibility of feeding the nation in the event of an emergency (Contingency Planning).

The resolution of basic policy issues will only be possible as suitable research is carried out. Examples of specific questions that may be framed are given under nine policy area headings. This is not a comprehensive list, but a selection of questions to provoke discussion:

1. Nutrition Policy Research and Formulation: Which policy issues should take priority for research? (The LFNC is designed to handle coordination of food and nutrition policy formulation. An interim Nutrition Planning Seminar held in August 1977 recommended that research in support of policy development be carried out through NUL and/or the Bureau of Statistics. Operational methods are now being developed by LFNC, with a view towards centralizing and coordinating nutrition-related research now being conducted in a variety of offices such as LASA, Agricultural Research Station, NUL, Bureau of Statistics, Chinese Agricultural Mission and CPDO. Agreement is needed on the priorities of research).

2. Improving Food Production in Lesotho:

- (i) Home grown produce accounted for 45% of the nation's plate of food in 1976 and local commercial produce for only 13% (CU-NUL, 1976). Should not efforts to capitalize the small holder be favored even more than efforts to capitalize the commercial farmer?
- (ii) Can Lesotho's 89% "non-arable" mountain lands not be terraced and farmed as is done, say, in the Azores?
- (iii) What import substitution is required on the national food balance sheet to decrease our dependence on South Africa? As an example of the type of data that would support analysis of policy issues, a table (Table 3) has been drawn up demonstrating what changes would have been necessary in 1976 agricultural production to have provided the FAO approved diet presented earlier. The table is preliminary, based upon admittedly inadequate data, and any projections from this model would have to take into account constraints such as changing income and price elasticities. Nevertheless, it illustrates how, starting from a focus on nutrition, relative differences in production goals and shortfalls can be indicated, with consequent implications for agricultural planning. (Note: Other patterns of target production could still have satisfied the same FAO nutrient requirements, but this permutation attempts to match the requirements with as small a change in household budget and in dietary habits as is possible).

Table 3. Target Productions of Food Commodities Needed to Have Secured Agricultural Self-Sufficiency in 1976. (Units: Metric tons (MT) unless otherwise indicated).

Food Commodity	A Target Production for Self-Sufficiency 75/76	Provisional Estimates of Actual Production 75/76	Deficiency (-)/Surplus (+)
Milk	35,000	27,000	-8,040
Eggs	9,125,000 dozen	1,258,000 dozen	-7,867,000 dozen
Meat/fish	13,140	8,722	-4,418
Beans/Peas	13,140	14,413	+1,273
Fruit/Vegetables	65,700	7,700	-58,000
Maize	84,840	49,128	-35,712
Sorghum	26,280	25,540	- 1,740
Wheat	45,800	44,640	- 1,160
Potatoes/Rice	6,570	4,960	- 1,610

Source: Bureau of Statistics, 1977. Annual Statistical Bulletin, 1976, Maseru.

- Notes: 1. In addition, the following items would have been needed as imports: 13,140 MT sugar, 4,380 MT oil, 1,315 MT tea, 2,190 MT salt.
2. Import substitution would have been required predominantly for eggs, fruit, vegetables and maize. However, in the event of a blockade, most urgently needed items (for basic survival) would have been maize, beans, vegetables and oil.

3. Distribution and Marketing of Nutritious Foods:

- (i) What are the constraints on schemes to produce, promote and market nutritious foods through Lesotho's 2,000 licensed retailers - eggs, milk, fish, peanuts, etc? (Certain wholesalers have indicated their interest in a "Nutritious Foods Campaign").

- (ii) Would traders resist carrying stocks of the Nutrition Corporation of Lesotho's highly nutritious subsidized products, e.g., soup powder, Somos, etc? Would the resultant change in tastes lead to a greater dependency on South Africa (owing to the Nutrition Corporation's direct trading with S. African manufacturers)?
- 4. Food Aid as a Tool of Development: Is food-for-work, and other food aid, a disincentive for village farmers to increase their productivity? How can food aid be programmed so that it does not just "maintain the status quo" and cause a greater and greater dependence on foreign aid?
- 5. Food Standards Legislation: Is it currently feasible to insist that all salt coming into the country be iodized, that maize meal contain its germ after milling, and that milk be T.B. tested? How can the implementation of such measures best be monitored?
- 6. Appropriate Food Technology:
 - (i) Is it more profitable to invest in on-farm storage or in training in appropriate preservation technology - as an attempt to minimize food spoilage? (Solar drying of vegetables has been suggested as one way of ensuring availability of a balanced diet independent of seasonal change).
 - (ii) Can a locally-produced weaning porridge (made from maize, beans and peanuts) be developed as in Malawi?
- 7. Reaching At-Risk Groups: Should they be specially identified, for example by food stamp programs, or rather be included in

community-wide programs that allow a general subsidy on commercially-available nutritious foods? Could food subsidies be arranged for particular periods of nutritional vulnerability, e.g., during pregnancy?

8. Nutrition Education and Training:

(i) Is an informative presentation of the need for consumption of a balanced diet, or for family spacing, or for culling of herds, or for soil conservation, etc. adequate in motivating a desirable change in behavior? Is some legislation needed?

(ii) How can information relevant to nutritional status best be linked to other rural development activities? Through cross-trained, multidisciplinary, mobile extension teams?

9. Contingency Planning: What agricultural production scheme could best accommodate any sudden large repatriation of Basotho miners from the RSA mines so as to: provide employment, make up for a loss of remittances and compensate for a possible reduction of the 31% imported food in the Food System?

VII. MISSING INFORMATION NEEDED TO HELP
RESOLVE POLICY ISSUES

1. Nutrition Policy Formulation

(i) File on policy models developed in other developing countries.

URGENT (ii) Food Balance Sheets and projection charts for all commodities (with productions matched against population growth).

(iii) Projections from the 1976 Census (of Population Profiles).

URGENT (iv) National Food Consumption and Household Budget Survey.

- (v) Monitoring reports on the nation's retail food prices.
- (vi) National Nutrition Survey of school children, adults and the elderly.
- (vii) Survey of crop failure and of total field-to-mouth losses.
- (viii) A Nutritional Status Model based on the Food System of Lesotho for simulation analysis of the effects of policy options.

2. Improving Food Production:

- (i) Reports on terracing programs in other mountainous lands.
- (ii) Up-dating newsletter on latest Lesotho research findings.
- (iii) Survey on the state of soil erosion in Lesotho.
- (iv) Set of food composition tables for Lesotho (including wild vegetables) and accompanying computer program for rapid analysis of any dietary option.
- (v) Report of research on minimum daily requirements in Lesotho.
- (vi) "Clinical signs" and "biochemical indicator" nutrition survey.

3. Distribution and Marketing of Nutritious Foods:

- (i) A sociology of food in Lesotho.
- (ii) Retail trader survey to assess interest in new lines.
- (iii) Food acceptability research on new products.
- (iv) Survey of traditional recipes and cooking techniques of rural mothers.

4. Food Aid as a Tool of Development:

- (i) Analysis of the cost-effectiveness of various types of food-for-work projects.
- (ii) Psycho-social study on the effects of food aid.

5. Food Standards Legislation:

- (i) Details of acceptable food standards in other lands.
- (ii) A CODEX ALIMENTARIUS for Lesotho.
- (iii) Experimental evidence on the value and feasibility of local food enrichment programs.

6. Appropriate Food Technology:

- (i) Comparative study on the cost effectiveness of different drying techniques.
- (ii) Evaluation of different training programs on drying and other preservation techniques.
- (iii) Feasibility study on the production of a weaning porridge made from maize, beans and peanuts.

7. Reaching "At-Risk" Groups:

SUGGESTED TOP
PRIORITY

- (i) Survey of the exact geographical locations of "at risk" groups (as part of National Food Consumption Survey or a Biochemical/Clinical Signs Survey).
- (ii) Analysis of possible correlations of malnutrition with more detailed socio-economic factors (sources of income, farming practices, eating habits, etc.), and accompanying computer program to give a print-out of maps depicting the constellation of positive factors.

8. Nutrition Education and Training:

- URGENT (i) Evaluation of the effect of a Nutrition Education Project (to be incorporated with the National Consumption Survey).
- (ii) Comparative studies on community development projects in other lands.
- (iii) Directory of nutrition contacts and opportunities for training in other lands.

9. Contingency Planning:

- URGENT (i) An economic model for projections over 10 years.
- (ii) Accurate annual figures on miners' remittances and projections over 10 years.
- (iii) A demographic model for projections of malnutrition over 10 years.

APPENDIX A: Resource List of 63 Departments and Organizations Involved in Nutrition Activities in Lesotho.

(63 agencies are listed under their representatives on the National Nutrition Advisory Group. Names of key contact people and their telephone numbers are provided, and a brief description of the agency's areas of activity).

A. Food and Nutrition Coordination Office Representation: (Ms. C.M. Phafane and Staff).

1. LFNC/FNCO. Lesotho Food and Nutrition Council with its Secretariat, Food and Nutrition Coordinating Office. Maseru 23958. Ms. C.M. Phafane, Director. (FNCO is the Secretariat for the Advisory Group as well as for the other sections of the Council - the Cabinet Subcommittee and the Resource Persons. The FNCO is directly responsible to the Chairman of the Advisory Group, Mr. L.B. Monyake, the Deputy Senior Permanent Secretary and seeks to coordinate all Lesotho food and nutrition activities falling under Government Ministries and donor and voluntary agencies. It will act as a single resource center for information and evaluation of programs).

B. Ministry of Agriculture Representation. (Ms. M. Moshoeshoe, Maseru 22741).

1. MOA - Ministry of Agriculture. Nutrition Section. Maseru 23600. Miss N. Jonathan (Head of Nutrition). (Together with Co-ops, Planning, Livestock, Crops, Soil and Extension Divisions, seeks to improve food production and consumption at a village level; specializes in courses to village mothers through 8 nutrition centers, village outposts and hundreds of pitsos, using specially trained staff of 60).
2. Ag. Inf. - Agricultural Information Services. Maseru 22389. Mr. H.L. Mokhachane, Director. (Produces audio visual aids for radio programs and for village nutrition presentations).
3. Ag. Research - Agricultural Research Station. Maseru 22372. Mr. R. McKee. (Has opened a nutrition branch and is prospectively interested in village survey work).
4. FTC's - Farmer Training Centers. Maseru 22741. Mr. Khetsi (5 MOA centers teaching nutrition to agricultural students and local farmers).
5. 3B's - "Balemi Ba Bacha" (Young Farmers Clubs). Maseru 22741. Mr. Mokobocho. (Sponsors village nutrition talks and gardening demonstrations).

6. CAM - Chinese Agricultural Mission. Maseru 23874. Mr. Y.S. Lin. (Experimental work on production of new and nutritious crops, e.g., soya, peanuts).
7. LAC - Lesotho Agricultural College. Maseru 22484. Mr. M. Mokorosi. (Provides courses in agricultural and rural domestic economy; plans to build new labs).
8. LASA - Lesotho Agricultural Sector Analysis. Maseru 22153. Dr. J. Eckert. (Agricultural planning, sector and subsector analysis, evaluation of policy and program options in agriculture and training).

C. Ministry of Health Representaion. (Ms. M. Seipobi).

1. MOH - Ministry of Health. Maseru 22501. Ms. M. Seipobi, Director MOH. (Through Health Inspectorate, Health Education Unit, Queen Elizabeth Hospital Training School, Maternal Child Health Department, and Public Health Nurses Department, seeks to educate public in good habits of breast-feeding, weaning and general dietary practice).
2. CHC - Comprehensive Health Care, Scott Hospital. Morija 209. Dr. R. Verhage. (Home visitation program; magazine; nutrition instruction at clinics).
3. HEU - Health Education Unit. Maseru 22501. Mr. I. Ralitapole. (Prepares radio programs, and courses in nutrition for trainee farmers, nurses and teachers).
4. LFPA - Lesotho Family Planning Association. Maseru 23645. Mr. W. Moleko. (Runs family planning services in 11 clinics; gives home economics instruction).
5. MCH - Maternal Child Health Department, MOH. Maseru 22501. Mrs. M. Seipobi. (Organizes and monitors food supplements and nutrition instruction with CRS).
6. PHN - Public Health Nurses, MOH. Maseru 22501. Ms. M. Phakisi. (Advises on, and takes part in, nutrition education at hospitals and clinics).
7. RED CROSS - Lesotho Red Cross Association. Maseru 23911. Mrs. A. Selio. (Offers nutritional instruction to mothers in 10 clinics).

D. Ministry of Education Representation. (Ms. E. Makhaba).

1. MOE - Ministry of Education. Home Economics Section. Maseru 23045. (Monitors, organizes and evaluates home economics training in NTTC, 7 special vocational schools and also in primary, secondary and high schools).

2. ABC - Assembly Bible College. Maseru 22497. Mrs. H. Heidenreich. (Nutrition lectures to trainee ministers; housecraft assistance in women's clubs).
3. ACL - Anglican Church of Lesotho. Maseru 22126. Mr. Nyenye, Education Secretary. (Support for nutrition instruction in Anglican mission schools and in St. James Hospital).
4. LDTC - Lesotho Distance Teaching Center. Maseru 22017. Sister M. Molelle. (Teaches agriculture, JC level, to correspondence course students; produces and evaluates educational materials for rural population, e.g., cook book).
5. LEC - Lesotho Evangelical Church. Morija 212. Mr. Tiheli, Education Secretary. (Supports mission schools and 2 hospitals teaching nutrition, plus newspaper which features nutrition articles, "LESELINYANA". Morija 244).
6. LNLS - Lesotho National Library Service. c/o Maseru 23045. Mr. Foresnawe. (Developing a collection of new nutrition books; will monitor those found in other libraries).
7. LYS - Lesotho Youth Service. c/o Maseru 23045. Mr. Lepoka. (Organizes special 10-month courses in agriculture for post-primary students; youth clubs feature food preparation).
8. MCC - Mennonite Central Committee. Maseru 22863. Mr. W. Royer. (Supplies volunteer teachers, specialized home economists and a fish-pond expert).
9. NTTC - National Teacher Training College. Maseru 22721. Mrs. E. Mokoteli, Home Economics Department. (Gives nutrition courses to all trainee teachers, special courses in agriculture and home economics to specialists and upgrading courses to in-service teachers; plans are in hand, with UNICEF help, to use intern teachers to teach nutrition in villages using a special cook book).
10. RCC - Roman Catholic Church. Maseru 22525. Father Taelle. (Supports nutrition and agriculture teaching in schools, hospitals and seminaries throughout the country; publishes "MOELETSI OA BASOTHO" newspaper).
11. SDA - Seventh Day Adventist Church. Maseru 22664. Pastor N. Matsietsi. (Teaches nutrition at one school and Maluti Hospital Nurses Training College; also provides housecraft courses in women's meetings).
12. SODEPAX - Lesotho Christian Council Commission on Development and Peace. Maseru 23639. Mrs. V. Sello. (Organizes Thaba Khupa Agricultural Institute and sponsors conferences on the role of churches in meeting rural development needs).

13. TS-RP - Training in Self-Reliance Program (World Bank). Maseru 22752. Mr. Lelala (Funding and equipment for expansion of 5 high schools to include special facilities for courses in matric Nutrition and Food and in Home Economics).
14. UNESCO - United Nations Educations, Scientific and Cultural Organization. Maseru 23045. Mr. A. Elias. (Provides funds for NTTC expatriate assistance and for production of self-instructional materials, many of which deal with food and nutrition).

E. Ministry of Rural Development Representation. (Mr. Putsoa).

1. MINRUDEV - Ministry of Rural Development. Maseru 23034. Mr. P. Machai. (Sponsors village level projects for poultry, water supplies, communal gardens, transport of food aid, and community courses in home economics and nutrition).
2. KHOMOKHOANA R.D.P. - Khomokhoana Rural Development Project. Maputsoe 214. Mr. Salai. (Special projects for local farmers to increase productivity; has a mobile cinema for extension work).
3. LCW - Lesotho Council of Women. Maseru 22511. Mrs. M. Mosala. (Composed of 5 associations, each featuring cookery and home economics activities).
4. SENQU - The Senqu Development Project. Maseru 2281. Mr. M. Helmsby. (Capital intensive crop production and erosion control).
5. TEAR Fund - The Evangelical Alliance Relief Fund. Ha Sefako. Libono Camp, Butha-Butha. Mr. S. Powell (Agricultural Demonstrator). (On site training in gardening, health and housecraft at a personal level).
6. THABA TSEKA - Thaba Tseka Rural Development Project. Maseru 22982. Mr. Tsepene. (Large scale experimentation in crop production coupled with reinforcement and expansion of extension services in agriculture and home economics).

F. Ministry of Interior Representation. (Mr. Mohlaha).

MOI - Ministry of the Interior. Maseru 23771. Mr. Mohlaha. (Has assisted in organization of nutrition surveys by securing cooperation of village chiefs).

G. Ministry of Commerce Representation. (Mr. Manyeli).

1. MOC - Ministry of Commerce. Maseru 23796. Mr. Mokhesi, Permanent Secretary. (Seeking to monitor licensing of village cafes so as to allow more equitable distribution of food supply points).

2. IPEPENG - Nutrition Corporation of Lesotho. Maseru 23774. Mr. A. Khitsane. (Manager). (Supplies highly nutritious foods at bargain prices; gives nutrition demonstrations).
3. MALUTI - Maluti Wholesalers. Maseru 23025. (Uses visits to institutions to demonstrate and promote sales of texturized vegetable protein (TVP) foods).

H. Ministry of Information and Broadcasting Representation. (Ms. Ramarou).

MIB - Ministry of Information and Broadcasting. Maseru. (Mr. Taole - papers, Mrs. Thale - Radio Lesotho). (Nutrition, health and agricultural programs on Radio Lesotho, articles on related subject in "MOCHOCHONONO" and LESOTHO WEEKLY" newspapers).

I. Central Planning and Development Office Representation. (Mr. Rockcliffe-King/Mr. Walton).

1. CPDO - Central Planning and Development Office. Maseru 23811. Mr. G. Rockcliffe-King and Mr. M. Walton. (Formally negotiates planning and financing of development projects relating to food and nutrition on behalf of the Government of Lesotho, and integrates food and nutrition planning with planning in other sectors).
2. DANIDA - Danish Volunteers Association. Maseru 22879. Mr. Klaus Wulff. (Volunteers help MINRUDEV in setting up communal gardens; Danish funds have underwritten new home economics laboratories at NTTC).
3. FAO - Food and Agricultural Association of the United Nations. Maseru 23790. Mr. Bayer, Programs Officer. (Funding for original Applied Nutrition Program; assistance to Rural Development projects).
4. NORAD - Norwegian Agency for Development. Gaborone 3221 (Botswana). Mr. K. Christensen. (Assists with funds, equipment and personnel at LAC).
5. ODM - Overseas Development Ministry (British). c/o Maseru 23861. (Cabinet personnel). c/o Mr. M. Sejanamane. (Funds teachers of science and equipment in post-primary schools where nutrition and health feature in the syllabus).
6. OXFAM - Oxford Committee on Famine Relief. c/o Maseru 22478. Mr. J. Parsons. (Supports agricultural education at Thaba Khupa Agricultural Institute, also village water and garden schemes).
7. PCV - Peace Corps Volunteers. Maseru 23871. Mr. J. Healey. (Supplies teachers and intern supervisors to MOE, many who teach nutrition in the school science courses and some who are home economics specialists).

8. SIDA - Swedish International Development Association. Info c/o UNDP, Maseru, Mr. Bayer. (Provides funding for rural development projects).
 9. UNDP - United Nations Development Program. Maseru 23897. Mr. McAdams, Res. Rep. (Funding and administrative planning and support for rural development projects).
 10. USAID - United States Agency for International Development. Maseru 2032. Mr. J. Figueira. (Funding for 3 years to Planning Assistance Inc. to establish the Lesotho Food and Nutrition Council).
- J. Food Management Unit Representation. (Mr. P. Khali).
- FMU - Food Management Unit. Maseru 23958. Mr. J. Briggs, Manager. (A new office under jurisdiction of the Cabinet to allocate all food aid, deal with its logistical problems and check on its proper use).
- K. Catholic Relief Service Representation. (Mr. O'Brien).
- CRS - Catholic Relief Services. Maseru 22427. Mr. D. O'Brien, Director. (Organizes massive food aid for some 70 clinics in a pre-school program; provides food aid for conservation and road building efforts).
- L. Campaign for American Relief Everywhere Representation. (Ms. M. Carney).
- CARE - Campaign for American Relief Everywhere. Maseru 23982. Ms. Mary Carney (Programs Officer). (Gardening and cookery instructions for Thaba Tseka mohair weavers).
- M. Save the Children Fund Representation. (Ms. W. Coaker/Ms. M. MaTefane).
- SCF - Save the Children Fund. Maseru 22279. Ms. Coaker/Ms. MaTefane. (Provides distribution of massive WFP food aid for primary school feeding, together with instruction in school gardening and organization of kitchens and water supplies).
- N. Private Health Association of Lesotho Representation. (Mr. B. Pekeche).
- PHAL - Private Health Association of Lesotho. Maseru 22531. Mr. Alan Foose. (Seeks to improve health status of Lesotho through coordination of Government and Mission/Voluntary Agency health facilities (70% of total, providing 50% of health care); has produced integrated program proposal for primary health care which features nutrition and food production elements).

O. World Food Program Representation. (Mr. A. Jones)

WFP - World Food Program. Maseru 23989. Mr. A. Jones. (Provides massive food aid for school feeding, food-for-work projects and now for Mountain Region Food Reserves; plans are approved for phasing out food aid to secondary schools and for using generated savings for promotion of self-sufficiency food production in school fields).

P. United Nations Children's Emergency Fund Representation. (Ms. S. Kellock).

UNICEF - United Nations Children's Emergency Fund. Maseru 23893. Miss Kellock. (Has provided massive support for the Applied Nutrition Program and for recurrent training costs in MOA home economics extension work; new package of projects include assistance to NTTC in upgrading nutrition education and to MOE in promoting gardening in primary schools, also help for training NTTC interns to give village demonstrations using a special cook book, and also stimulation of poultry production).

Q. Bureau of Statistics Representation. (Mr. M. Mpiti).

BOS - Bureau of Statistics. Maseru 23852. Mr. M. Mpiti. (Has assisted in planning and implementation of Nutrition and Food System Surveys; carries out population and agriculture censuses and household budget surveys; publishes data on food imports/exports and on health and education; plans now to assist a National Food Consumption Survey).

R. National University of Lesotho: Research Potentials Representation. (Dr. W. Klass).

NUL - National University of Lesotho. Roma 201. Dr. Klass/Dr. Milazi. Sociology Department. (Nutrition and agriculture dealt with in biology and administration courses, e.g., "study of agriculture problems in the Roma valley; Sociology Department played major role in nutrition surveys - plans are in hand for institutionalization of food and nutrition research at NUL).

S. National University of Lesotho: Institute of Extra-Mural Studies Representation. (Mr. J. Bofelo).

IEMS - Institute of Extra-Mural Studies, NUL. Roma 201. Mr. J. Bofelo. (Organizes conferences in nutrition, rural leadership training, health; publishes "LEHLAANYANA" paper).

T. World Health Organization Representation. (Dr. G. Quincke).

WHO - World Health Organization. Maseru 22121. Dr. G. Quincke. (Gives technical advice, and arranges opportunities for further training, to promote efficient health delivery systems; has developed a new clinic statistical return to monitor under-nutrition in the villages).

U. Planning Assistance Incorporated Representation. (Mr. R. Learmonth).

PAI - Planning Assistance Incorporated. Maseru 23958. Mr. R. Learmonth. (Provided technical assistance to run the Nutrition Conference in 1975, to open the Food and Nutrition Coordinating Office in 1977, and now gives advice on management and planning techniques in the FNCO).

APPENDIX B: Sources of Information on Nutrition Activities in Lesotho:
Selected Reports, Books and Articles.

A. Locations

LASA - Lesotho Agricultural Sector Analysis Library, Ministry of Agriculture

FNCO - Food and Nutrition Coordinating Office, Prime Minister's Offices (behind China Garden).

CPDO - Central Planning and Development Office Library

LAC - Lesotho Agricultural College Library

NTTC - National Teachers Training College Library

Archives - Ministry of Education Archives (soon to fall under the Lesotho National Library).

B. Latest Reports

1. University of California, Los Angeles (UCLA), 1976. The Kingdom of Lesotho Nutrition Survey. Los Angeles. USAID. (FNCO).
2. University of Colorado/National University of Lesotho (CU-NUL), 1978. An Exploratory Study of the Food System of Lesotho. Maseru. Planning Assistance. (FNCO).
3. Planning Assistance/Lesotho Food & Nutrition Council/USAID, 1977. Lesotho Food and Nutrition Planning and Research Assistance, Project Proposal Years II and III. Maseru. (FNCO).
4. Anderson, J.H. and Thorne, C.A., 1978. The Current Status of Nutrition Education in Lesotho - 1977. Planning Assistance. Maseru. (FNCO).
5. Anderson, J.H., 1977. Breast Feeding and Weaning Practices in Lesotho: a response to a USAID questionnaire. Maseru. USAID. (FNCO).
6. Truswell, A.S., 1977. Lesotho: a survey of opportunities for expanding professional training in food and nutrition. FAO. Accra. (FNCO).
7. The Government of Lesotho, 1975. The Second Five Year Plan, Parts I and II. Government Printers, Maseru. (CPDO)
8. Bureau of Statistics, 1977. Lesotho's Import Price Index, January 1977. Maseru. (CPDO)

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APPENDIX C: Sample Calculation of the 1976 Average Per Capita Food Consumption Figures (From 1972/1973 Urban Household Budget Survey Figures).

Data also used: 1972/1973 price list (based on work of Arie van der Wiel).

Cost of Living Indices (based on calculations of Bureau of Statistics).

Conversion factors, converting mass of purchased food to equivalent mass of commodity from which derived (based on work of N. Vassiliou).

Average family size: 4.3 (from Food System Study).

Primary Calculations: Which income group in the 1972/73 Household Budget Survey is equivalent to the average household in 1976?

Parameters

M(Rands) = monthly income for average household in 1976.

I = cost of living index for June 1976 if Dec. 1972 = 100.

Calculation

Equivalent income 1972/73 = $\left(\frac{100}{I} \times M\right)$ Rands/month

Secondary Calculations: Converting amounts spent per food item in the equivalent 1972/73 budget into per capita per day consumptions of commodities.

Parameters

E cents = expenditure per month per equivalent household on a particular food item.

P cents/gm = average price of the food item

C = conversion factor to bring food item to mass of commodity from which derived.

Calculation

Assuming a 4.3 member household and a 30-day month, per capita per day consumption of a particular commodity = $\left(\frac{E}{P} \times C\right) \frac{1}{4.3 \times 30}$ gm/day.