

PN-AMM-857
ISN-29333

9311064/62

BACKGROUND PAPERS
FOR
WORKSHOP ON

**Social and Nutritional
Surveillance
in
Eastern & Southern
Africa**

**Nairobi, Kenya
17-19 May 1982**

CO-SPONSORED BY:

UNICEF
Eastern Africa Regional Office
PO Box 44145, Nairobi, Kenya

and

Cornell Nutritional Surveillance Program (CNSP)
Division of Nutritional Sciences
New York State Colleges of Human Ecology & Agriculture and Life Sciences
Statutory Colleges of the State University of New York
Cornell University
Ithaca, New York 14853
U.S.A.

The CNSP is supported by Cooperative Agreement # AID DSAN CA-0240 between the Office of Nutrition, Bureau for Science & Technology, USAID, and the Division of Nutritional Sciences, New York State Colleges of Human Ecology & Agriculture and Life Sciences, Cornell University, Ithaca, New York 14853.

A report of research of the Cornell University Agricultural Experiment Station.

These are the papers prepared for the Workshop on Social and Nutritional Surveillance in Eastern & Southern Africa held 17-19 May 1982 in Nairobi, Kenya.

The report of the workshop, a companion document to this one, is available from the Cornell Nutritional Surveillance Program, 145 Savage Hall, Cornell University, Ithaca, NY 14853 U.S.A. or from Ken Williams, Regional Advisor in Statistics, UNICEF, P.O. Box 44145, Nairobi, Kenya.

EASTERN AND SOUTHERN
AFRICA

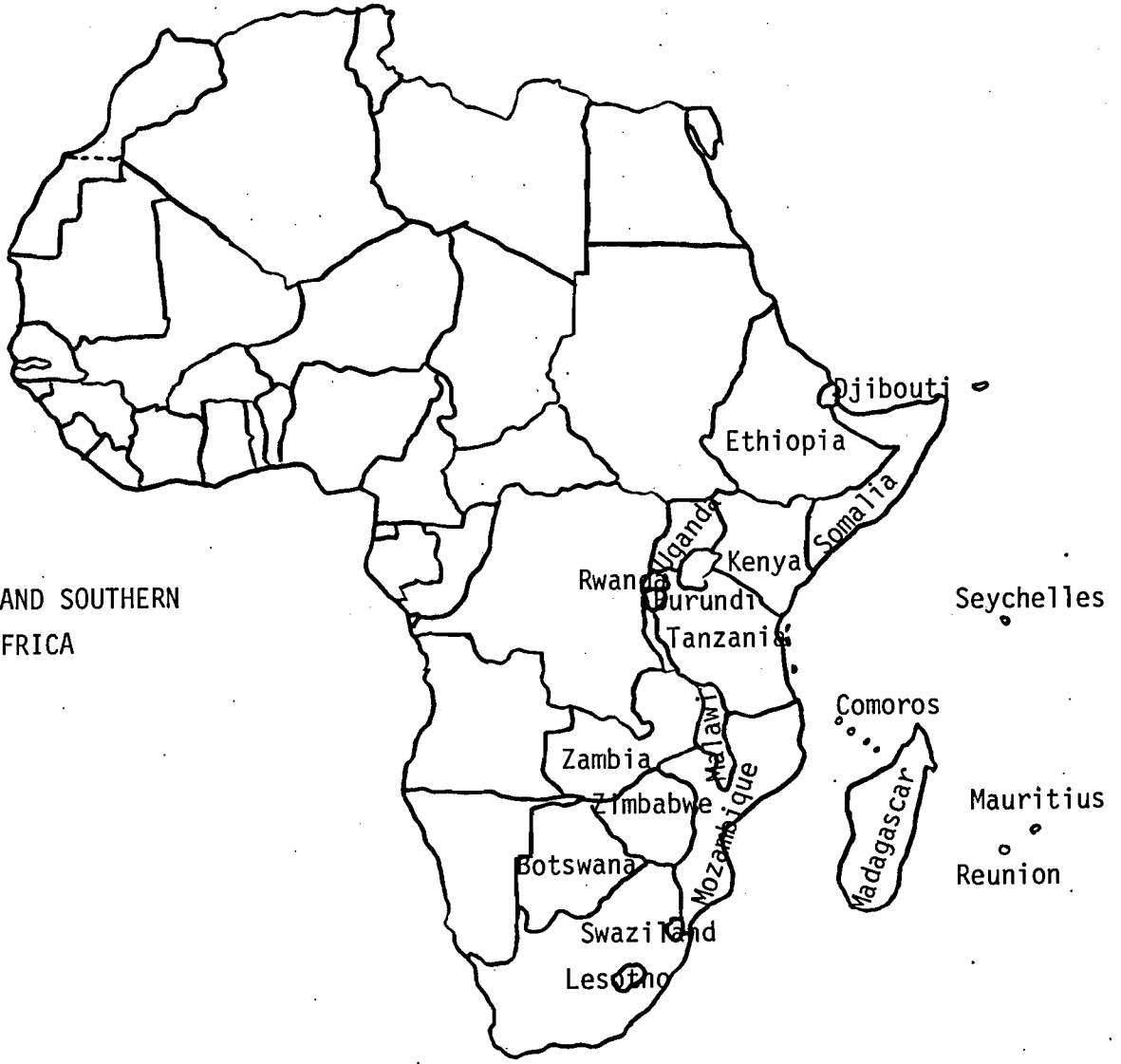


TABLE OF CONTENTS

<u>Papers</u>	<u>Page</u>
Up-date of the Nutrition Surveillance in Botswana T.O. Maribe	1
Nutritional Surveillance in Kenya J. Kekovole, F. Omoro, and L. Wasonga	11
Nutritional Surveillance in Malawi M. Chiligo and L. Msukwa	19
Surveillance and Monitoring Programmes in Tanzania W. Bategeki, B. Gakuba, and S. Mwisomba	39
Outline of Karamoja Nutrition Surveillance and Supplementary Feeding Programme - Uganda D. Alnwick	48
Historical Background of Nutrition Surveillance in Zambia C. Chikamba	53
Social and Nutritional Surveillance in Eastern and Southern Africa K. Williams and J. Mason	64

UP-DATE OF THE NUTRITION SURVEILLANCE

IN BOTSWANA

T. Maribe

A system of Nutrition Surveillance was first introduced in Botswana in 1976, as a pilot project limited to certain parts of the country.

It was adopted and started on a national scale in January 1978, using weight-for-age measurement in preschool children attending the "Under-Five Clinic" as a yardstick. This system was later amended to include the measurement of height. This facilitated the measurement of the degree of stunting (under height) for a given age and wasting (under weight) for a given height. The Ministry of Health and the Central Statistics Office have taken a lead in developing the systematic collection and presentation of data for this program.

Purpose and Characteristics

The objectives of the National Nutrition Surveillance in Botswana are as follows:

1. To assess the importance of malnutrition at a health point, regional and national level.
2. To enable the health worker to initiate specific interventions for individuals nutritionally at risk.
3. To enable the Regional Health Team and the Nutrition Unit to set priorities for Nutrition Action programs.
4. To enable the Interministerial Drought Committee to monitor preschool malnutrition for setting trigger levels for famine relief at the local level.

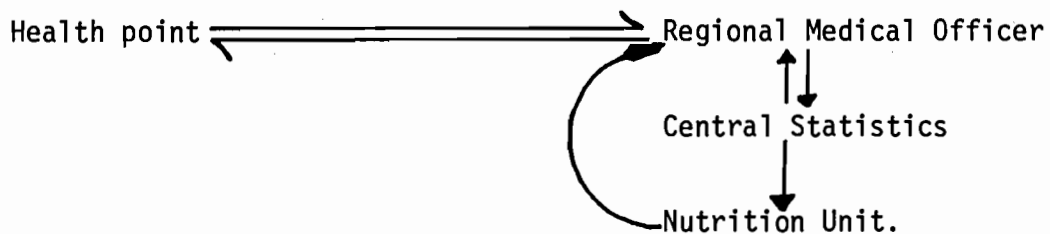
Figure 1. Percentage of Children Under Five at Risk: National and Regional Summary, January - December 1981

Region	Jan.	Feb.	March	April	May	June	July	August	September	October	November	December
1. Maun	24	28	30	30	24	23	24	24	27	28	30	32
2. F'town	27	25	29	29	23	23	24	23	26	27	29	28
3. Serowe	25	29	24	24	19	26	20	18	20	25	26	33
4. S/Pikwe	25	21	20	20	23	19	22	23	21	22	24	26
5. Molepolole	34	31	32	31	27	29	29	27	28	30	31	33
6. Lobatse	26	29	31	31	28	27	27	25	27	29	27	32
7. Ghanzi	37	38	35	29	32	32	31	34	33	38	41	39
8. Mahalapye	26	27	24	25	21	20	23	23	22	22	25	25
9. Gaborone	27	26	30	29	30	26	24	26	22	27	30	29
10. Chobe	30	30	N/A	19	23	20	18	14	18	21	29	27
11. Kgalagadi	32	36	37	35	27	24	25	24	29	29	26	35
NATIONAL TOTAL	43095	46141	48472	40577	46446	48185	48950	52872	57200	48232	47967	36091
Percent at Risk	27	28	27	27	24	24	24	23	24	26	28	30
CLINICS REPORTING	262	248	263	263	266	280	281	284	296	273	286	243

Data Collection and Data Source

Weight-for-age and weight-for-height are compiled monthly on all pre-school children attending participating health points (hospitals, clinics, health posts and mobile stops).

The cards used are Morley's weight chart for the weight-for-age measurement and a specially designed computer form for weight-for-height. The flow of information from and to reporting sources is as follows:



The Regional Medical Officer analyzes and checks the data for errors before passing it to Central Statistics Office, where it is computerized.

Figure 1 shows the percentage of children at risk in the country from January to December 1981. The percentage of children at risk are shown to range from 23% - 30%. This range is within the 20% - 30% range indicated for a normal year, and 1981 was a normal year, by Botswana's standards. There seems to be no significant regional variation in the percentage of children at risk.

Figure 2 shows a graph of the percent of children nutritionally at risk from January 1978 to December 1980. Here the effects of drought during 1979 can clearly be seen.

Data Analysis

Data analysis is presently being carried out by the Nutrition and Education Unit of Central Statistics Office at the National level. They are currently using ICL 2956 operating under maximop with a core capacity of 256 k words. The capacity of this machine has been increased by the acquisition of another ICL 2946.

There are software packages such as the Rothamstes General Survey Package (RGSP) and Genstat installed on the ICL machine which are generally available for use by all data processors. However, the Nutritional Surveillance data is currently being analyzed using specially written software.

The results are released in two forms. Individual health points receive their original data sheets with the total number of children seen for the month, the "at risk" level National and Regional summary plus a summary of ecological zones. These reports (weight-for-age) are sent to the Ministry of Health, the Nutrition Unit of Family Health Division, Ministry of Finance and Development Planning, Local Government and Lands and to the Interministerial Drought Committee. The reports are distributed the month after the month of collection. The other form (weight-for-height) is broken down as follows:

1. Reference number of the child
2. Wasting
3. Stunting
4. Wasting and stunting and an indication denoting whether the condition is moderate or severe. Presently two forms are produced, one remains at Central Statistics Office and the other is sent to Nutrition Unit of the Ministry of Health.

Here the interpretation is done and feedback sent to the reporting Health Points through the Regional Medical Officer. Of particular interest and importance are those areas with more than 40% of their children at risk since this is one of the several criteria used for determining those areas to receive relief assistance under the Government's drought relief plan.

Although the system has only recently been computerized, data exists going back to January, 1978. This data shows that during a normal year the percentage of children at risk nationally is lower during the winter months than during the summer months.

The average weight of children for specific ages shows that Botswana children gain weight normally for the first six months of life (Figure 3). For the next twelve months their gain is much lower than normal and for the ages 18 to 59 months, although their gain in weight is more normal, the children had been handicapped by their gain in weight during the 6-18 months periods.

Use of Data for Decision Making

At the health point level, clinics are directed to contact all those children who are wasted or stunted for inclusion in a group feeding program carried out by clinics with financial aid coming from District and Town Councils. Family Welfare Educators are being urged to follow-up all children designated as severely malnourished. At national level the Nutrition Unit uses this information to plan nutrition intervention programs and to provide support to the health points showing high risk levels. The International Committee uses it together with

seven other indicators to monitor drought. Even with its shortcomings, it is considered to be one of the most important indicators in drought monitoring.

Problems Encountered in Practice

Health Bias. The results of the system are derived not from a random sample of the nations under-fives, but from those who voluntarily attend the various health facilities. There is a strong feeling that this can lead to two problems:

1. Under-estimation of malnutrition
 - a. "Centrally" located clinics will have high attendance of people who are socially advantaged.
 - b. High rate of children under one year will not reflect expected peak age for PEM at age 2-4 years (Age Bias).
 - c. Poorer social/ethnic groups from the periphery do not come as often.
 - d. Tall, wasted children appear not at risk.
 - e. Distances to walk (to a health facility) is a disincentive.
2. Over-estimation of malnutrition
 - a. Supplementary feeding schemes attracting lower strata of population with higher nutrition risk.
 - b. Clinic treatment for infectious childhood diseases attracting primarily sick children.
 - c. The use of a unisex standard in which girls are obviously systematically disadvantaged since their standard weight is lower compared to boys throughout the age range 0-5 years.

3. Does not reflect causal factors of malnutrition.
4. May exclude other vulnerable groups. Gooch and Macdonald in their report on the evaluation of 1979/80 Drought Relief Program found out that some primary school-age children were nutritionally worse off than the under-fives.

Other problems are of an administrative nature. These are:

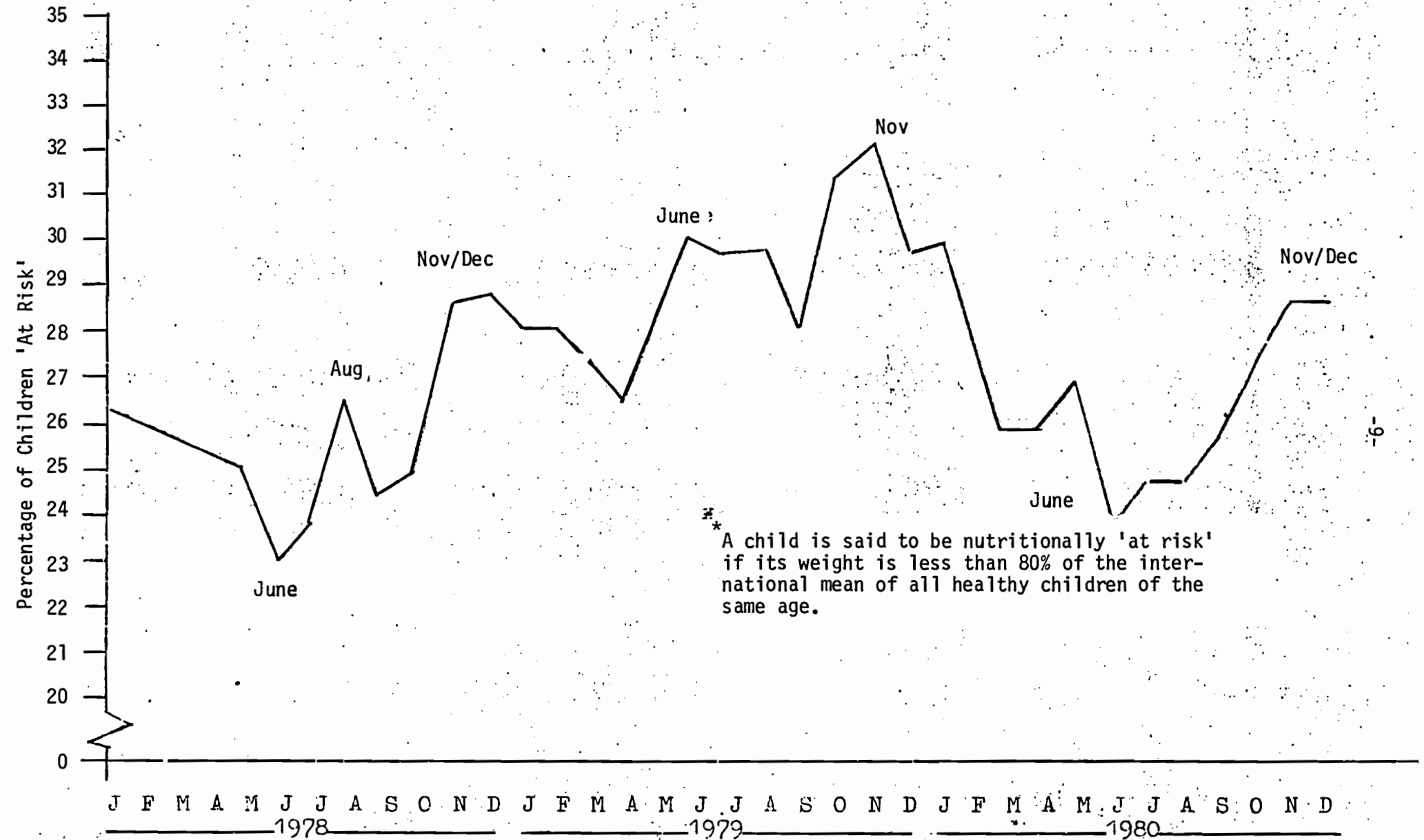
1. Incorrect data plotting.
2. Reluctance to do follow-up of severely malnourished children.
3. Communication between Regional Medical Officers and reporting sources. There is claim by the health personnel in these facilities that they do not get any feedback from headquarters. The problems of communication and inaccessibility of some of the parts of the country may compound this problem.

Sources of Information

1. Original document - "Personal correspondence of J. Kreysler to J-P. H '79" and "Nutrition Surveillance in Botswana as a Method of Planning and Prevention of Hunger situation" by J. Kreysler, June 1978.
2. Evaluation of 1979/80 Drought Relief Program by Joby Gooch and John Macdonald, June 1981. Property of Botswana Government.
3. Intercountry Nutrition Workshop, November. Botswana Government.
4. Statistical Bulletin, June 1980, Volume 5, No. 2.
5. Country Profile, August 1981, Central Statistics Office.

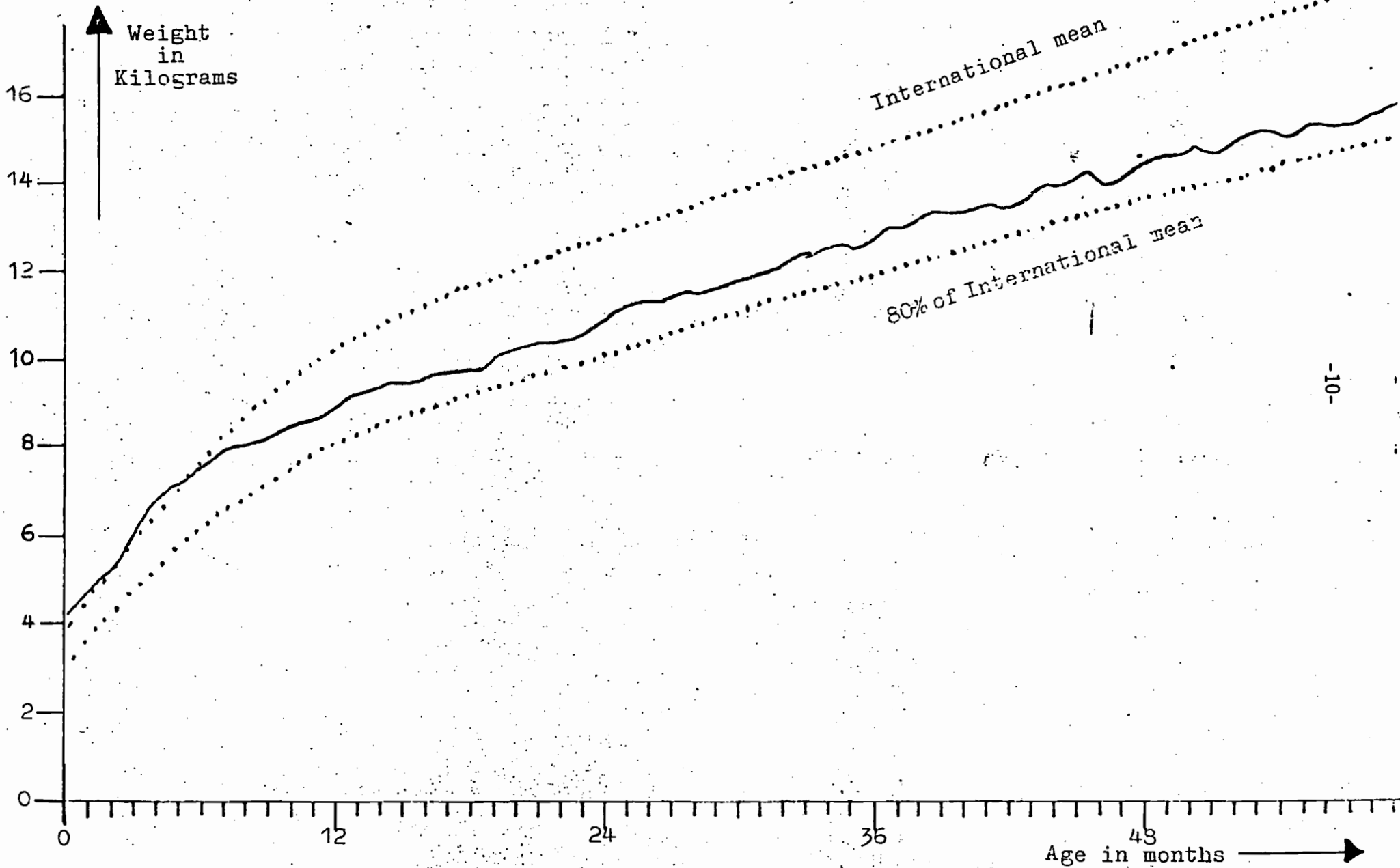
Figure 2

Percentage of Children under five nutritionally 'at risk'* - January 1978 to December 1980



Source: CSO, Statistical Bulletin, June 1980, Vol. 5 No. 2.

Figure 3 Average Weight of Children attending Health Points in Botswana
During December, 1979 by Age



Source: CSO, Statistical Bulletin, June 1980, Vol. 5 No. 2.

NUTRITIONAL SURVEILLANCE IN KENYA

John Kekovole
Festus Omoro
Luke Wasonga

Introduction

The Kenya Government attaches important significance to the monitoring and evaluation of nutritional status of the population. The current development plan 1980/84 has its main theme as "alleviation of poverty" which underscores the need for uplifting the quality of life with particular emphasis on the most disadvantaged groups i.e. the landless, urban poor, women, children and small holders. This paper will highlight the organisational structure of collecting data on nutritional status, the analysis of the data and the utilization of the findings in development planning in Kenya.

Organisational Structure

The Central Bureau of Statistics (CBS) is the most important source of data for monitoring and evaluation of nutritional related activities in Kenya. The development of the capability to collect such data within the CBS has a long history as follows:

1. Before 1974, the statistics on food availability, nutritional status of the population and community level information were highly limited. Attempts to secure data on agricultural production through ad hoc surveys were tried but did not achieve the anticipated results.

2. By 1974 the CBS realized the need to strengthen the data collection activities through integrated sample surveys. This realization initiated the establishment of the National Integrated Sample Survey Programme (NISSP) 1974/79. The above programme was designed to create a common master frame on which all sample surveys could be effected and harmonization of concepts could be implemented. The programme covered about 24,000 households in rural areas and about 8,000 households in urban areas excluding nomadic districts. A permanent field organization with permanent staff and provincial offices was established. During the life time of this programme data on agricultural production and disposal was collected every year; Nutrition Surveys deploying anthropometric measurements of children aged 1 year - 4 years in 1977 and 6 months - 60 months in 1978/79 were carried out; market prices of basic food stuffs were secured; and crop forecasting as a tool for ascertaining the food supply situation was established. The data collected through the programme could lend itself to disaggregation by province and ecological zones. Linkage of data sets from different surveys was enhanced. The above linkage has facilitated the analysis of nutrition data within a socio-economic context.
3. The work initiated during NISSP has further been improved upon by expanding the coverage in terms of sample size and content of data to be collected within the National Sample Survey and Evaluation Programme (NASSEP) 1980/84 which succeeded NISSP. NASSEP has been designed to generate data which can be disaggregated to district level excluding 7 districts currently inhabited

by nomadic population (estimated at 5% of Kenya's population in 1979). The programme is envisaged to carry out the following surveys:

1981/82 - Household Budget and Consumption Survey; Nutritional Survey; Crop Forecast Surveys; Market Prices Surveys; and a survey on Social indicators.

1983/84 - Comprehensive agricultural survey; Demographic survey; Crop forecast surveys; and market prices survey.

1984/85 - Employment survey; Crop forecast surveys; and market prices survey.

This programme covers about 65,000 households in rural areas and 15,000 households in urban areas.

4. In addition to these sample surveys, the Government is interested in evaluating the impact of development projects on nutrition status of the target population. Work is currently underway in the Baringo semi-Arid project, Rural Access Roads programme areas and soon will be initiated in low income housing schemes currently funded by the World Bank and also on irrigation projects.

Nutrition Survey

The first nutrition survey was carried out in February/March 1977 in rural areas. The first report on the survey was published in Social Perspectives Volume 2 Number 4 of September 1977. Given the sample size the results could not be disaggregated lower than provincial level. It, however, gave a good base on which subsequent surveys were to be gauged.

The sample of respondents for the above survey was restricted to rural children over 1 year and under 4 years of age. Information on height allowed computation of the three nutritional-status indices H-A, W-H and W-A to assess physical development in terms of percent of standard height-for-age, weight-for-height and weight-for-age respectively. Information was also obtained on mid upper arm circumference (MAC), birth order, period of breastfeeding and the number of meals taken the day prior to enumeration day and number of meals normally taken.

The second Nutrition survey was done in 1978/79 (October - January) covering both rural and urban areas. In rural areas, the same household respondents for IRS IV were interviewed while household respondents for Labor force survey were interviewed in urban areas. The target population in this survey were children aged 6 months - 60 months (6 months - 5 years). The same anthropometric information was collected except for MAC. MAC yielded no extra information when analyzing the first survey and therefore wasn't deemed very necessary. Information was also obtained on household social amenities, morbidity and weaning foods. This second survey covered about 4000 children while only about 1400 were covered in the first one.

In an attempt to justify the use of "Harvard standards", children of an upper class dominated Nursery school were measured and results analyzed to compare with other urban and rural children. The results showed that the distribution of these nursery school children very much conformed with what you would expect in any community with well fed children.

A primary advantage of using NISSP framework, apart from facilitating work, is that a substantial body of data already exists on the same households that responded to the Nutrition Survey. For example information on ecological zones, ethnic group, cropping patterns and household size is already available. Interesting inroads have been made into understanding

some of the factors which are associated with childhood undernutrition. This has been made possible by linking the second Nutrition Survey data with information in IRS . The basic report on the second Nutrition Survey has been published under the heading "Report of the Child Nutrition Survey 1978/79." The report from the merged files is yet to be released. The target population for the third survey is going to be children aged 3 months to 60 months. Once more anthropometric information will be obtained and mothers of the eligible children in the survey will provide information on morbidity, weaning foods, their (mother's) social status and household social amenities.

The sample respondents for this survey will be the same respondents now being interviewed for household budget survey both in rural and urban areas. It is envisaged that linkage of nutrition data file with the file of household budget survey will yield some extra information so far not attained in the previous two surveys.

Efforts are now being made by the interministerial coordinating committee on food and nutrition to have a unit which will be engaged in Nutrition Surveillance as soon as all sources of nutrition status data have been streamlined and coordinated.

Food and Nutrition Planning Activities

The need to integrate food and nutrition considerations into development programmes has been emphasized by the Government. In line with this F N P U (Food and Nutrition Planning Unit) was established within the Ministry of Economic Planning and Development (MEPD). The unit serves as a point convergence in harmonizing and co-ordinating the concepts, policies and activities related to food production and nutrition interventions. Its activities involve examination of constraints and

approaches of incorporating nutrition considerations into development projects. Special attention is given to agricultural and rural development projects.

For effective operation, the FNPU works in collaboration with the operating ministries involved in food production and nutrition intervention. This is done through interministerial coordinating committee which meets regularly. The bulk of data collection and analysis is done in close collaboration with Central Bureau of Statistics (CBS).

Main Activities

The activities of the unit include the following:

1. Analysis of existing data, mainly from CBS. For instance the unit has attempted to disaggregate the existing data from provincial to district level. This had some problems. However, it is hoped that the data to be provided by NASSEP will be amenable to district analysis. Secondly, in corporation with CBS, the unit has encouraged the efforts to link nutrition variables and other socio-economic variables to generate some relationship between them. This gives the planners insight into which variables strongly influence nutritional status and therefore should be manipulated.
2. Evaluation and surveillance of nutritional impact of development projects. This involves baseline surveys and indepth surveys. Such studies include effects of cash crop growing on nutritional status. The unit has also undertaken project oriented evaluation in Magarini settlement scheme and Baringo Semi-Arid Area project.

3. Analysis of policy implications to overall food production, consumption and nutritional status.
4. Identification of target group and defining the problems likely to cause malnutrition and health problems in general.

Co-ordination With Other Institutions

This is done through the interministerial coordinating committee which consists of ministries and non-governmental organizations involved in food production and nutrition interventions.

The core members of the committee include:

1. Central Bureau of Statistics (CBS) whose task is to provide nutritional related data.
2. Office of the president. This is responsible for famine relief services' monitoring food security; assessing the need for food importation to bridge the domestic deficit.
3. Ministry of Agriculture. The main responsibility for the ministry include provision of information on prices; food situation; marketing information; food production; early warning on crop situation; assessment of storage capacity and matters related to home economics.
4. Ministry of Health provides information on clinical signs; child care and family health status. The ministry is also responsible for nutrition extension workers.
5. Social Services. The social services department endeavours to improve sanitation and environment; attempts to identify sociological and economic problems of the households and encourages improved standard of living through nutrition education.

6. Ministry of Education. This is responsible for pre-school feeding programmes; school milk programme and collection of information on age and weights of children when they enter the school.
7. Non-governmental organizations. The activities of these organizations are very important in closing the gaps that can not be filled by the Government. The activities include nutrition interventions; food provisions and implementation of projects aimed at alleviating the nutritional problems identified. These organizations also collect data which can be tapped and used as control for the information produced by CBS and other institutions involved in data collection.

NUTRITIONAL SURVEILLANCE IN MALAWI

Ms. M. O. Chiligo
and
Mr. L. M. Msukwa

Introduction

The Nutrition Section in the Ministry of Agriculture is responsible for the Nutrition Surveillance in Malawi. Although located in the Ministry of Agriculture, the section serves an inter-ministerial Food and Nutrition Committee which co-ordinates nutritional programmes by different ministries (Ministries of Agriculture, Education and Culture, Health, Local Government, the Department of Community Services and the University of Malawi). In its nutrition surveillance, the Nutrition Section uses data from most of the above ministries and organisations that form the Inter-ministerial Committee but the most important source of data is from Agricultural Development Divisions of the Ministry of Agriculture.

Surveillance System Through A.D.D.'s

Malawi, through the National Rural Development Programme has been divided into eight Agricultural Development Divisions (ADD's) through which most of the Nutrition Surveillance and Nutrition Education and training programmes are implemented. The Senior Agricultural Extension Officer in every ADD has been given the responsibility of all food and nutrition programmes. He receives and compiles quarterly and annual reports from field officers before sending it to the Nutrition Section in the Ministry Headquarters. As it will be noted from annexes 1 to 4 there are three main areas on which data is collected: food availability, monitoring of malnourished children and nutrition education.

Food Availability

The system is set so that we are able to get early warning on probable food shortage areas and be able to monitor the impact of development programmes on the availability of food. This includes quantified information on any expected food shortages so that the Agricultural Development and Marketing Corporation (ADMARC) can be advised in good time to increase local maize (or other staple) stocks if necessary.

A reasonably accurate crop forecasting (estimating) procedure has been adopted which is done three times a year throughout the country--soon after planting December/January, in March, and just before harvest in June. In addition to these estimates, the Food and Nutrition Programme Officers carry out a food situation assessment tour just before harvest. In order to predict short-falls, estimates are based on how many kgs of maize or cassava are available per head of population. The desirable home consumption of maize has been estimated at 270-300 kg per head per year (approximately 3 bags) where maize is the staple and eaten as 'ufa'. For other cereals and for 'mgaiwa' (i.e., wholemeal ground grain) the requirement is 175-200 kg per head per year, while for cassava approximately 400 kg of fresh cassava per head per year is needed.

Monitoring of Malnourished Children

This is a follow-up of malnourished children who have been identified at the under-fives clinics. The follow-up is done by both the Ministry of Health and Farm Home Assistants of the Ministry of Agriculture.

Several cases of protein calorie malnutrition seen at clinics are referred to one of the 23 nutrition rehabilitation centres in the country

where the mother and child are admitted for 21 days. After that, the mother is discharged and the Ministry is interested to know the progress of the child after the discharge. Information collected includes whether the child relapses or not, dietary and other information on the family of the child, etc. The nutrition section gets information from the Ministry of Health's own monitoring system although a regular information flow system between the Ministry and the nutrition section is yet to be developed.

Nutrition Education

The unit also collects information on nutrition education in the ADDs as outlined in section C of the formats in the appendix. However, a lot of nutrition education is also carried out by other government ministries including Education (schools), Local Government, and the Department of Community Services. The Private Hospitals Association (PHAM) also undertakes nutrition education in the country.

Problems Faced With the System

The Nutrition Surveillance system as described above and in the formats contained in the appendices was introduced only some seven months ago. Before this there was no system of Nutrition Surveillance. It is therefore difficult to assess the suitability of the system but some problems have already been identified.

It has been found difficult to make follow-ups of some of the malnourished children, especially those attending mobile under-five clinics, due to lack of proper records concerning the children's homes.

The system needs regular supervision by the Nutrition Section, especially as it is new. This requires transport being regularly available, which has not always been the case.

However, we hope that as the field staff get used to the system, there will be less need for the headquarters staff to go out for supervision. The Agricultural Development Division level staff will take over most of the supervisory work.

The National Sample Survey of Agriculture
and the Annual Survey of Agriculture

Another important source of information on nutritional status is the National Sample Survey of Agriculture (NSSA) and the Annual Survey of Agriculture (ASA). Apart from collecting data on general agriculture, both these surveys collect information on nutrition including anthropometric measurements.

Before the introduction of a country-wide NSSA, a pilot survey was carried out in 1979 in four areas of the country. One of the components of the survey was a weighed food consumption. Sample households were visited daily for five days every eight weeks for about nine months. All food cooked in the household was weighed, both the raw ingredients and the food consumed by the individual members of the family were recorded. Through this survey it was possible to find out how much of a variation of goods different individuals were eating, and how often.

Tables 1 and 2 give a summary of the findings of the food consumption survey of the pilot NSSA compared with that observed in the 1968/69 NSSA.

TABLE 1
PERCENTAGE CONTRIBUTION TO ENERGY
INTAKES BY FOOD COMMODITIES

	1968/69 ^a	1979 ^b
Cereals	79	75
Roots/Tubers	6	5.3
Groundnuts	1.7	5.7
Pulses	9.7	5.4
Vegetables	1.0	3.4
Animal Products	2.6	2.1
Others	--	2.1

a. Source: NSSA (All Malawi) by Dietary Recall.

b. Source: Pilot NSSA 1979 (4 maize-eating areas) by weighed food consumption.

TABLE 2
WEIGHED FOOD CONSUMPTION SURVEY 1979 PILOT NSSA
AVERAGE DAILY INTAKES OF COMMODITIES -
GRAMMES PER HEAD

Food Commodity	Pre-Harvest	Harvest Time	Late Harvest	Mean
<u>Cereals</u>				
Ufa	212.4	209.0	248.3	223.2
Mgaiwa	62.7	50.9	21.5	45.2
Green Maize	55.1	20.3	16.6	30.7
Rice	2.9	6.9	5.0	4.9
<u>Roots/Tubers</u>				
Sweet Potatoes	3.0	46.3	43.2	30.8

The main findings of the data analysed indicated that:

- i. Energy intakes were low ranging from 64-72 percent of the estimated requirements.
- ii. The protein content of the diet was adequate providing about 12 percent of dietary energy i.e., if enough food is eaten to satisfy energy requirement then the protein intake will be sufficient.
- iii. The fat content of the diet was low with fat providing about 10 percent of dietary energy i.e., the diet is 'bulky' or of low energy density and large quantities have to be eaten in order to satisfy energy requirements.
- iv. In the survey areas maize provided about 74 percent of recorded energy intake and about 56 percent of protein intakes.
- v. Meal frequency averaged about 1.6 both for adults and young children.
- vi. Intakes of iron, vitamin A and riboflavin (B₂) were low.

The implications of these findings in terms of planning future nutrition education programmes are that:

1. Efforts should be made to increase consumption of foods rich in fat e.g., groundnuts, pumpkin seeds, sesame, sunflower seeds and avocado. This is particularly important for under-five nutrition as children have small stomach capacities and need frequent feeding if energy requirements are to be met.
2. Extension services should give more advice on the use of nutritious snack foods which can easily be carried to gardens and schools.

3. Over-dependency on maize should be discouraged by promotion of secondary or reserve crops such as sweet potatoes, sorghum and cassava.
4. Greater use of livestock for food should be encouraged to provide a more easily absorbed source of iron.
5. More attention should be given to horticulture by agriculture extension, to promote the availability of food providing vitamin A and Riboflavin.

Another component of the pilot NSSA involved collection of weights and lengths of children under five years of age. These data confirmed that underweight was a serious problem affecting about 32 percent of survey children. There was no significant variation in the number of underweight children during the survey period, which suggests that malnutrition is a chronic problem, with deep-rooted agro-socio-economic causes.

The field work of the second NSSA was completed late in 1981 and data is still being analysed. From this year, 1982, NSSA has been replaced by the Annual Survey of Agriculture which has also a nutritional component.

The strongest point of both NSSA and ASA as sources of information on nutrition is that data on nutrition can be cross tabulated with other variables in the survey, including family size, income, holding sizes, etc. Nutritional policies and programmes are much more likely to be meaningful if based on information on agriculture and socio-economic factors.

MONTHLY REPORT FOOD AND NUTRITION

FIELD ASSISTANT MONTH YEAR.....

AREA :

NO. OF FARM FAMILIES :

A. FOOD AVAILABILITY

(i) Staple food :.....

Supplies for most families are : (i) plenty

(ii) low

(iii) inadequate

(ii) Name of ADMARC market/depot

Maize purchases by ADMARC this month

Maize sold by ADMARC this month

(iii) Availability of other foods

Cereals

Pulses

Oilseeds

(inc. g/nuts)

Roots/Tbers

Fruits

Vegetables

B. FOLLOW-UP OF MALNOURISHED CHILDREN -- SUMMARY REPORT

<u>NAME</u>	<u>AGE</u>	<u>VILLAGE</u>	<u>PROGRESS</u>
.....
.....
.....
.....
.....
.....
.....
.....

* ENTER "GOOD" "SOME" "NONE"
AS APPROPRIATE

C. NUTRITION EDUCATION AND TRAINING

1	<u>Location</u>	<u>No.</u>
1. No. of Farm Families contacted
this to be completed for
-- personal/individual visits
-- meetings/demos
.....
.....

2. Main Nutrition Messages this month	
Message	justification
(i)	
(ii)	

(iii)

(iv)

D. GENERAL COMMENTS

Signed:

FOOD AND NUTRITIONS.A.E.O'S QUARTERLY REPORT TO.....A. FOOD SUPPLIES

- | | | |
|------------------|--|--|
| 1. <u>E.P.A.</u> | <u>SUPPLY OF STAPLE</u>
(indicate adequate; low;
inadequate) | <u>ESTIMATED REQUIREMENTS</u>
(if applicable M.
tonnes.) |
|------------------|--|--|

-
2. E.P.A. Pulses G/Nuts Leafy veg. Other veg. S.potatoes Cassava
(Supplies to be indicated by the codes: W= widely available)
L= limited availability
S* Short supply
N= None

3. PRE-POST HARVEST LOSSES

Details of any particular problems to be listed, with
estimated losses.

4. FRUITS IN SEASON

B. NUTRITION STATUS

- (i) Attendances at Nutrition Clinics by EPA.
- (ii) Numbers of families visited as follow-up for malnourished children, by EPA.
- (iii) Number of reported repapses, by EPA.

C. NUTRITION EDUCATION AND TRAINING

- (i) Main topics/messages with justification, by EPA.
- (ii) Number of farm families, by EPA, contacted via
 - (i) individual visits
 - (ii) groups/clubs
 - (iii) meetings/demos.
- (iii) Number of farmers (male and female separately) trained at:
 - DTC (by EPA)
 - RTCs
 - FIs.
- (iv) Staff training - details of any nutrition training given to staff during the quarter.

D. SPECIAL PROJECTS

Progress report on any special activities.

E. GENERAL COMMENTS

FOOD AND NUTRITION
AREA SUPERVISOR'S QUARTERLY REPORT

AREA SUPERVISOR.....
 JOB LOCATION.....
 QUARTERLY PERIOD..... TO.....
 TOTAL FARM FAMILIES IN THE AREA :

A. FOOD SUPPLIES

Locations where staple supplies inadequate	Estimated No. of affected families

ADMARC STOCKS as of/8. : Kg

Total purchases by ADMARC for this quarter :

Total sales by ADMARC for this quarter :

AVAILABILITY OF OTHER FOODS

(Tick as appropriate)

	Available all over	In short supply (specify areas)
Sorghums/milletts		
Sweet potatoes		
Cassava		
Pulses		
Groundnuts		
Leafy vegetables		
Other vegetables		
Fruits (all types)		

General comments on food availability

B. FOLLOW-UPS OF MALNOURISHED CHILDREN

Location	No. of children followed-up	Total No. attending Nutrition clinic.	No. of children not progressing well

General comments on problems of families having/have recently had malnourished children.

C. NUTRITION EDUCATION AND TRAINING

(i) Main topics covered

Justification

(ii) Number of families contacted (estimate) - personal visits

Location	Families	Location	Families

TOTAL _____

(iii) Number of meetings etc. at which nutrition discussed.

<u>Location</u>	<u>No.</u>	<u>Location</u>	<u>No.</u>

D. GENERAL COMMENTS ON THE AREA.

(Give your impressions of sanitation and hygiene problems; food security; nutritional awareness etc. Please give any suggestions for action).

E. SPECIAL PROJECT PROGRESS REPORTS.

(Give brief summary of project activities to date.

Attach additional paper if space provided is insufficient).

SIGNED :

DATE :

ANNEX 4

FOOD AND NUTRITION
ANNUAL REPORT (_____)

The format for the report includes the following sections :

A. FOOD SUPPLIES

- (i) estimated per caput availability of food commodities (from Evaluation Data where possible).
- (ii) name of locations experiencing food shortages and the degree of severity.
- (iii) Total ADMARC sales and purchases of maize, groundnuts, beans.
- (iv) pre-and post - harvest losses - agent of loss; severity; action taken
- (v) uptake by farmers of fruit tree seedlings and vegetable packages (if applicable).

B. NUTRITION STATUS

- (i) number of follow-ups of malnourished children visited and estimated rate of relapse
- (ii) locations where attendance at Nutrition Clinics is higher than average

C. EDUCATION AND TRAINING

- (i) main areas covered in nutrition education and justification

BEST AVAILABLE COPY

(eg. introduction of new sorghum varieties to improve food security; importance of three meals a day for family health as meal frequency in the area is low)

(ii) number of male and female farmers receiving nutrition education at DTCs, RTCs and FIs, main topics covered; number of hours

(iii) numbers of farmers contacted regarding nutrition through :

(a) individual visits

(b) groups/clubs

(c) meetings/demos.

(iv) nutrition component of staff training

D. OTHER AREAS RELATING TO NUTRITION

(i) local water supplies - percentage of families having piped water; access to boreholes or protected wells.

(ii) sanitation - details of any programmes promoting pit latrines.

(iii) family resources
(from evaluation unit data)

(iv) appropriate technology - details of any programmes

E. SPECIAL PROJECTS/PROGRAMMES

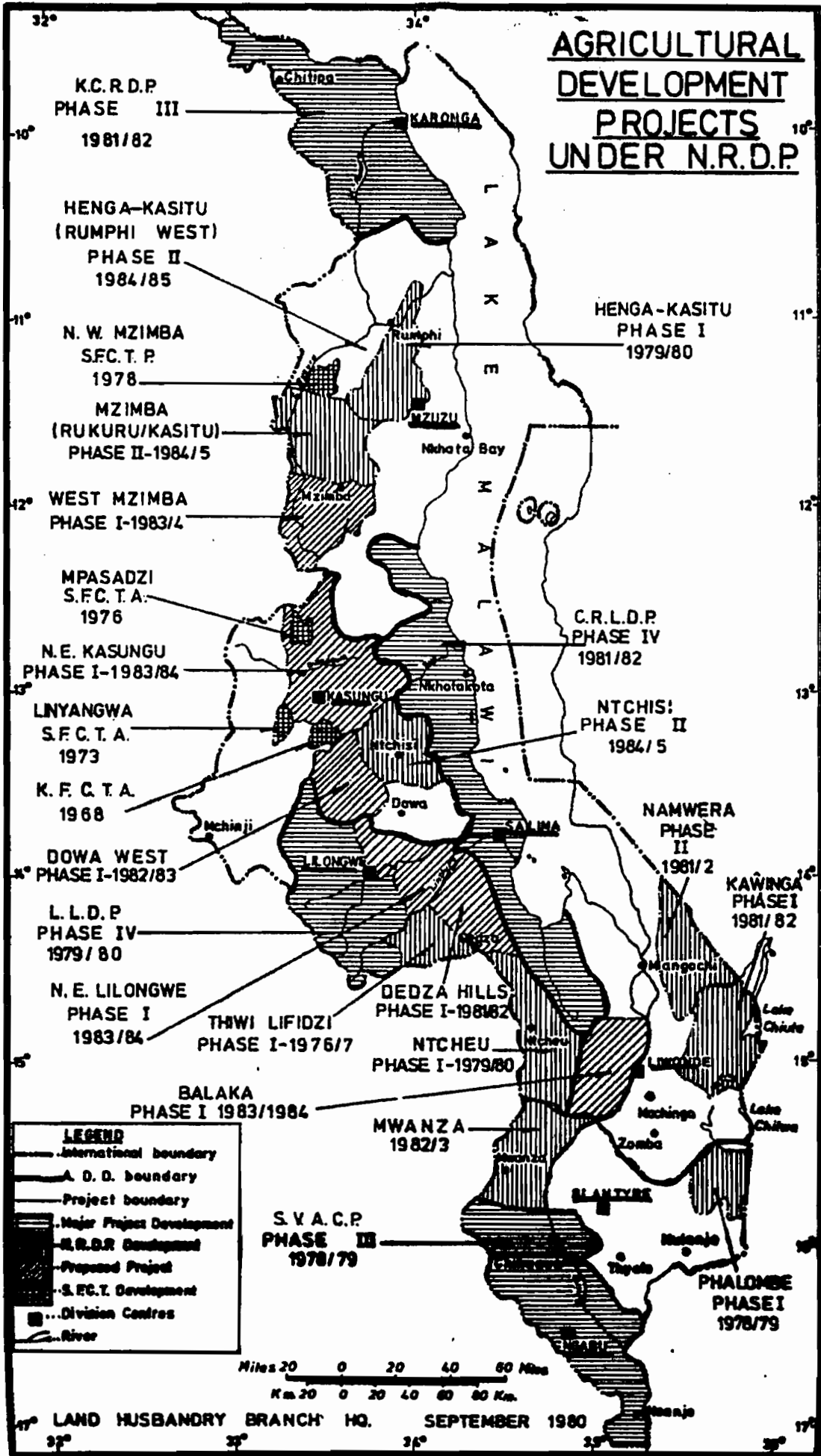
Details of any special activities to be given.

F. COMMENTS

General comments on nutrition situation ; activities and recommendations.

DATA TO BE TABULATED WHEREVER POSSIBLE

AGRICULTURAL DEVELOPMENT PROJECTS UNDER N.R.D.P.



SURVEILLANCE AND MONITORING
PROGRAMMES IN TANZANIA

W. B. Bategeki
B. Gakuba
S. T. Mwisomba

Introduction

That malnutrition is rampant in Tanzania as it is in most of the developing countries has been well understood. Clinics issuing monthly reports on e.g. child underweight, malnutrition symptoms, diarrhea diseases, etc. reveal the widespread prevalence of malnutrition in the country, particularly affecting the vulnerable groups such as the pre-school children, and the pregnant and nursing mothers. Some nutritional surveys done in rural areas of Tanzania indicate a probable deterioration of the nutrition situation over the past years. In terms of human welfare, the findings of these surveys are alarming. The exceptionally high prevalence of malnutrition, very high rate of population growth and occasional natural calamities like floods, and droughts not only cause immeasurable hardship to the people but also impede national development through their negative effects on production and life expectancy. These short-term disruptions so profoundly affect food supply, food consumption and disease incidence, thereby influencing nutritional status, that frequent localised seasonal crises may be considered one of the major impediments to long range national development.

In view of the precarious nutritional situation of the country and some sudden and unexpected nutritional crises, surveillance has become a matter of great urgency. As a matter of fact, nutritional surveillance has become a subject of interest to many UN agencies. The use of

surveillance is to identify the areas of vulnerability and determine the type of qualitative and quantitative interventions. It is not an isolated activity, but is part of long-range policy formulation and programme implementation. It provides information necessary for formulation of policies on the one hand, and it produces feed-back information for modification of policies and intervention programmes on the other.

There are no classical designs of surveillance systems that could be readily employed in all countries. Every country differs in its requirements for planning and intervention. Keeping in view the resource constraints of the country, it may not be advisable to make huge investments on any ambitious surveillance system through which precise predictions on the nutritional situation can be made. We should rather endeavour to identify simple, low-cost and easily obtainable indicators that could predict with reasonably fair limits the nutritional status of population groups. With this objective in view we have undertaken some projects aimed at developing such a system for the country. Others are still on trial basis.

Regional Nutritional Surveillance

The Objectives of the System

The main objective of a regional surveillance system is to provide planners and policy makers with valid information on the food and nutrition situation. Such information is now being collected, compiled and communicated within different institutions, but there is a need to co-ordinate such information if malnutrition is to be attacked by parallel actions in different fields. Thus the system can be said to have the following specific objectives:

1. To assess nutritional status of the population with particular reference to the groups at risk.
2. To provide information that will contribute to the analysis of the causes of malnutrition.
3. To enable predictions to be made early enough to make relief actions possible.
4. To monitor nutritional effects of all Regional development programmes.

Decentralization means among many other things that the regions themselves must develop a capability to collect data, compile, analyse, and communicate. A surveillance system would create some interest in data analysis. This also would encourage extension workers to improve their methods of data collection.

Basic Principles

The idea behind the system is that the regions with their normal administration set-up of staff together with Tanzania Food and Nutrition Centre should be in a position to develop and run a surveillance programme. Another principle is to first study, use and eventually improve the existing data collection and communication procedures. Here both formal and informal channels should be explored. The system is only complementary to other information system. It is not going to replace the important day-to-day contact between extension staff, villagers and district or regional authorities.

Lastly is that whatever system tried, it should be kept in mind that the system should be multiplicable to all the regions. High costs inputs are therefore out of question.

Activities Done

Baseline Nutrition Survey. The baseline survey of 15 villages covered a sample of 3,278 children of up to five years of age was carried out. It focused on assessment of prevalence of malnutrition, the symptoms and a few dietary and disease factors. The survey was done in two phases; seven villages in the northern part were surveyed in October/November 1979 and a further eight villages in the southern part were surveyed in October 1980.

Surveillance Committees. Surveillance coordinating committees have been formed from the village level up to the Regional level. At the Regional District level the Regional District Development Director is the Chairman of the Committee.

Training Seminars. It had been necessary to train through seminars present cadres of extension staff the basic purposes of the surveillance system and how improvements can be made on the collection and analysis of data to suit the surveillance system. The main objective of the NUTRITION Seminars in villages is to increase the awareness of malnutrition problems among the village leaders, to promote and encourage practical action of the malnutrition problems within their location to the village nutrition committees. Those trained at a village level include village Chairman and his secretary, village manager, village leaders (all the ten cell leaders and leaders of different committees within the village), extension

workers (if happens to be nearby the concerned village), headteachers of surrounding primary schools and members of the Nutrition Committee. Also ward secretaries were invited.

Problems Encountered in Practice. The project has lagged behind schedule in implementation. The setting up of administrative machinery and training seminars took up far too much time. As such the actual running of the system was delayed. Acceptability of the system which is the result of understanding of the system and awareness of the malnutrition problems is still lacking in some of the leaders at all levels.

The other problem is the validity of data being collected. Most of the data is unreliable. However, this type of problem will be solved by the system itself.

Early Warning and Crop Monitoring System

Description of the System

The Early Warning and Crop Monitoring Project is based in Kilimo (Ministry of Agriculture) but works in close cooperation with the Prime Minister's Office, Directorate of Meteorology of the Ministry of Communication and Transport and the Ministry of Water (MAJI).

The aim of the Project is to provide advance information and assessment of Government on crop production, stocks, supplies and utilization of food grains for all the regions of TANZANIA Mainland. In this way it is envisaged that the government and all those concerned can take suitable and timely action. This information should also facilitate better planning.

The project is also required to evaluate the National Milling Corporation's stocks, procurement, sales and forecasting data. Another component of the project is to analyse current Agro-Meteorological conditions. Rainfall data for some 300 meteorological stations were spread over the country are provided by the Directorate of Meteorology rainfall station network on a weekly basis. Information on crop varieties, their growth cycles, planting dates, development stages, dates of maturity as well as information on the incidence of pests, diseases and local adverse weather conditions are obtained through Regional and District Agricultural Development Offices on a monthly basis. The analysis of this data allows the project to regularly evaluate the forthcoming harvest on a qualitative basis.

The Problems

In some regions the data on food and crops condition are not available. Moreover, it is unfortunate that the project cannot produce any quantitative information which could give a picture of the food situation in the country.

The Maternal and Child Health Services System

This system was not designed as a surveillance system in totality. But its component of growth monitoring can serve a vital surveillance role if the information so generated is analyzed, interpreted and with the seasonal variation can serve as early warning purpose for those seasons known for high rates of malnutrition which could help the stepping up a community action at those times to prevent malnutrition. Thus it is included here as an example of surveillance systems.

Purpose of System

The MCH services are designed as a comprehensive system to offer necessary services for mother and child for the promotion and maintenance of good health and nutrition. The services rendered are both preventive and curative.

The MCH system offers the following services; monitoring child growth, antenatal care, immunisation of mother and child, postnatal care, nutrition education, counselling and treatment. Malaria prophylaxis is given routinely.

Child Growth Monitoring

The child growth is monitored by weighing and recording the weight-for-age every time the child comes to the clinic. Weight-for-age is therefore used to assess nutritional status. At the same time clinical observations are made. The weight-for-age is plotted on a "Road to Health" card that is kept by the mother. In its graphic form it is possible to explain to the mother the variation of the child's growth. Immediate advice is therefore given to the mother. Factors that can explain why a child is losing weight can be brought out in the discussion. Necessary follow up can be made.

The Problem

In using this information it is recognized that those who come to the clinic are already a selected sample. However, if many come with nutritional problems it is clear that the community they come from has problems. No investigation is made for example on confounding variables for the nutritional status. As mentioned earlier the seasonability aspects are

not studied nor the socio-economic characteristics of the malnourished children. At the clinic level the MCH-aid knows when high cases of malnutrition are likely, but this knowledge is not tapped.

The National Socio-Economic Profile (NASEP)

The Aim of the System

The Central Statistics Bureau intends to establish a longstanding cooperation between itself and data collecting institutions. At present, such cooperation does not exist. Two levels have been identified for data collection. Data is needed at household and village level. Also the Bureau will publish, on regular basis, some socio-economic indicators; disaggregated according to Region, Rural/Urban, male/female, age and socio-economic group. The project is in its initial stage:

Conclusion

In view of what has been done so far by Regional Nutritional Surveillance System; the Early Warning and Crop Monitoring Systems, the Maternal and Child Health Services and the National Socio-Economic Profile, a comprehensive monitoring system will emerge with an acceptable degree of accuracy and confidence.

References

1. Progress Report on the Iringa Surveillance Project--TFNC Report No. 725.
2. Proposal to a Regional Food and Nutrition Surveillance System -- TFNC Report No. 217.
3. Tanzania 1st National Food and Nutrition Conference: Prime Minister's Office and Tanzania Food and Nutrition Centre.
4. WHO (1976): Methodology of Nutritional Surveillance, Report of a joint FAO/UNICEF/WHO Expert Committee.
5. Crop Monitoring and Early Warning Systems: FAO/KILIMO Dar es Salaam.

OUTLINE OF KARAMOJA NUTRITION SURVEILLANCE AND SUPPLEMENTARY FEEDING PROGRAMME

David Alnwick

Purpose of System

1. To rapidly detect any deterioration in nutritional status.
2. To provide the authorities responsible for relief food distribution with guidelines as to the quantities of food needed to be distributed in the various parts of the district.
3. To inform responsible authorities and agencies of the likely need for large scale emergency feeding programme.
4. To provide a nutritional supplement to children found to be undernourished and simple nutrition and health education to their mothers.

Description of System

Background

The programme operates in Karamoja District, a semi arid area of North East Uganda bordering Kenya in the East and Sudan in the North.

The District has an area of about 30,000 square Km and an estimated population of 260,000 people (Census Data is unreliable). A major famine took place in the District during 1980 in which the overall mortality may have been as high as 20 percent of the population. In some areas half of the children under 5 died directly of starvation.

Towards the end of 1980 the magnitude of the emergency was recognized and large amounts of relief food were distributed. Emergency child feeding and nutrition rehabilitation centres were established.

By February, 1981 the nutritional status of children had improved dramatically. About 7 percent of under fives were below 80 percent weight/height in February, 1981 compared to an estimated 40 percent in September, 1980.

By mid 1981 few children needed to be provided with cooked food every day and many of the feeding centres closed. In place of the feeding centres, the nutrition surveillance and supplementary feeding programme was established.

Operation of Centres

The programme operates in 20 centres distributed fairly evenly over the populated areas of the district. Each centre opens at least once every two weeks. Mothers who believe their child is thin or is losing weight, are encouraged to come to the centre to have their child examined.

At the centre, the degree of wasting of each child is determined using the weight-for-height chart developed by Save the Children Fund. Children found to be less than 80 percent of their expected weight-for-height (in the red area of the chart) are admitted to the programme.

The status of each child measured (determined by the position of the child's head on the weight-for-height chart) is marked on a master tally sheet kept in the centre, as well as on the child's individual

record card. Separate tally sheets are kept for children who have never attended the centre before (New Attenders) and children who have previously been found to be undernourished and have been brought back for re-assessment and another food ration (Re-attenders).

Each child found to be less than 80 percent weight/height is given a ration of 2.25 kg food packed in a polythene bag. The child's mother and any accompanying child are also given a ration. The ration consists of a mixture of maize meal, dried skimmed milk powder and vegetable oil. It is intended that the semi-dry mixture be cooked into a thick, energy dense, porridge. Additionally, cross-sectional surveys of the nutritional status of children in a random sample of households are also carried out from time to time. Estimates of crop production based on quantity of seed supplied and likely yields have been made.

Reporting of Results

At a time every two weeks the number of new attenders and re-attenders in each of the 5 weight/height percentage categories (less than 70, 71 to 80, 81 to 90, 91 to 100 and more than 100) are reported by radio to the programme headquarters in Soroti and UNICEF, Kampala.

Interpretation of Results

Greatest importance is attached to the number of undernourished new attenders, taken to indicate the incidence of undernutrition in the areas around the centre. Sudden increases in this figure for a particular centre, or upward trends are taken as a sign of worsening food availability.

The weight/height of the cohort of 're-attenders' would also be expected to increase over the 3 month period during which food supplements are given, especially if few new children had been admitted during this period. If this expected increase is not seen, it is taken as additional evidence for a deteriorating situation. The small food supplement is only likely to be given as a supplement to the 'target' child if the rest of the family is receiving adequate food.

On the basis of the interpretation of these two sets of figures, and how they have changed from those of previous two weekly periods, a situation report is provided to the Food Relief Department, Ministry of Health and non-governmental agencies.

Problems Encountered in Practice

The usefulness of the surveillance system depends on a number of assumptions which are difficult to test. It must be assumed that mothers recognise that their child is getting thinner and that they would then submit him to weighing and measuring in order to get the food supplement. This may involve a walk of several hours, and queing for several more hours.

The inhabitants of the area that the centre is located in, may, be hostile to outsiders, even those from a few miles away. "Advertising" the programme may rapidly change the number of attenders.

It must further be assumed that mothers attach great importance to the well being of their child, perhaps over and above that of themselves and the rest of their families. Cases have been reported of mothers starving their children in order to get them into the programme

and keeping them thin as long as possible in order to continue receiving the food supplements. It is not thought that this practice is very common but the danger of this type of programme actually creating mal-nourished children must be considered.

In Karamoja, it is extremely difficult to know the size of the population in the 'catchment area' of any particular centre. The population is still semi-nomadic and an increase in the number of mal-nourished children attending a centre might reflect an increase in the population of the 'catchment area' rather than being due to an increase in the prevalence of malnutrition.

Frequent population movements also make the results of repeated cross-sectional surveys on the same sample of households extremely difficult to interpret.

HISTORICAL BACKGROUND
OF
NUTRITION SURVEILLANCE IN ZAMBIA

C.Y. Chikamba

Malnutrition has been long recognised as a national problem in Zambia. According to Vamoer (1975), indications from investigations going as far back as the early '30s to the most recent food consumption and nutrition status surveys, confirm the grim conclusion that malnutrition and under-nutrition are widespread in Zambia. The incidence of malnutrition rates range from 15 percent to 45 percent in different provinces. The proportion of severe malnutrition admitted to health institutions is about 10 percent. About 25 percent of childhood deaths in hospitals is estimated to be directly due to malnutrition related to other infections. Altogether malnutrition is a direct and an associate cause of death in over 70 percent of childhood deaths in Zambia. Undernutrition is also reported by the school medical service to be a common feature in primary school children. The 1973 School Medical Service Annual Report showed that an average of 24.37 percent of all primary school children examined in Kitwe alone were found to be underweight.

The major population groups most affected are the children below the age of five years and the pregnant and nursing mothers.

Present data indicate that food consumption levels, especially in rural population is still below the desirable levels--e.g., average calorie intake meets only 87 percent of the recommended requirements (WHO/FAO Recommended Allowances).

Major deficiency diseases commonly found in Zambia are protein-energy malnutrition (PEM), avitaminoses A, B (riboflavin) and C (ascorbic acid), anaemia and goitre. Found in combination with nutritional deficiencies is a high incidence of parasitic infestations--hookworms, malaria and bilharzia.

Causes of malnutrition are many and varied, a number of social, economic, dietary and other factors interact to produce malnutrition. Some of the major contributory factors can be listed as inadequate food supply, seasonal food shortages, poverty, ignorance, dietary habits, break up of marriages, decline in breast feeding in urban areas, use of untrained nannies by working mothers, infections, etc.

Combating malnutrition therefore means tackling these complex and adverse factors simultaneously through an integrated and co-ordinated programme in order to involve as many related programmes as possible so as to bring nutrition and nutrition related activities to as many people as possible, especially those in rural areas and the peripheral areas of large cities. Integration of nutrition in family health and primary health care is one such useful approach of bringing nutrition activities to people on community level. But this can only be possible if related Ministries like Health, Agriculture, Community Development, Development Planning, etc. had information on a continuous basis called surveillance. Surveillance, from the French "surveiller" means to watch over with great attention, authority and often with suspicion.

Surveillance includes evaluation which is a process of reaching a judgement, on the basis of clearly defined criteria, about the success of any operation or programme. Nutrition Surveillance may also mean,

monitoring the nutrition situation on a continuous basis. Nutrition surveillance is based on regular collection of data on anthropometric indicators, health status, food availability, purchasing power, etc. These indicators help the planner to judge whether malnutrition is decreasing or increasing.

In case of Zambia, Nutrition surveillance started seriously with the launching of the Maternal and Child Health Services (MCH), in 1967.

Purposes or Aims of MCH Nutrition Surveillance

1. To reduce malnutrition in the nutrition worse-off population groups in Zambia i.e., under five children; and pregnant and lactating mothers.
2. To monitor changes in the nutritional status of target groups and the factors that affect these.
3. To design a system of the flow of information which could enable the government to predict trends and therefore plan for probable solutions to the problem of malnutrition. Trends in the rate of malnutrition enable the Ministries involved to distribute meagre resources wisely.
4. To initiate training in collection and evaluation of indicators by various staff categories; i.e. Medical Assistants, Nurses, Nutritionists and Nutrition Demonstrators.
5. To develop methods to extend clinic-based surveillance to the community.

The Nutrition Surveillance System as it Exists or Description of System

The existing surveillance system can be subdivided into four categories.

Data Collection

The basic instrument for data collection at the moment is the "road to health" or Children's Clinic form. This form in its present form owes its origin to the World Health Organisation where it was developed as a general guide for designing forms for gathering information on the nutrition status of children 0-5 years. In its present state the form collects information on immunisation history and weight-for-age (W-A).

The information from the children's clinic form is transferred to the clinic/health centre register. In collapsed form the information is submitted as a monthly, quarterly or annual report through the various layers of Ministry hierarchy.

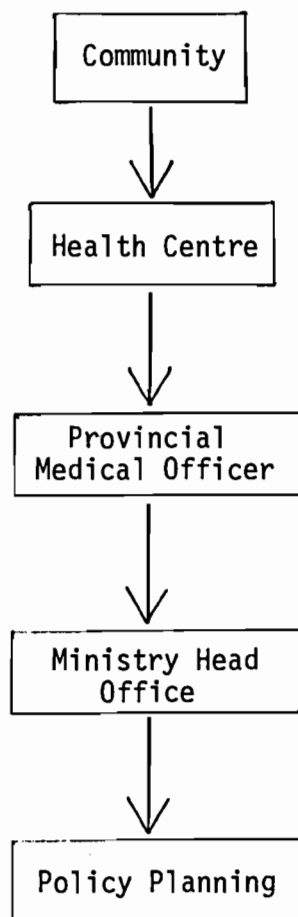
At the clinic/health centre the information on W-A is collected by untrained staff, in most cases either dressers or volunteers, under the supervision of Medical Assistants or Zambia Enrolled Nurse. The Medical Assistant or Zambia Enrolled Nurse collapses the information for transmission.

Data Transit

The information on nutrition surveillance at the moment is in its raw form at the clinic/health centre. After it has been aggregated it

is sent to the Provincial Medical Officer where the Provincial Statistician converts it into a report on nutrition from the province to the Ministry head office. At the head office the statistical unit shares the information with MCH.

The flow of information in the existing system is a one way flow as follows:



It is quite obvious from this flow that there is no feedback to the province, district or community.

Data Analysis

Even though some conversion of data from its raw state is processed at two stages -- health centre and province, there is no evidence to suggest that it is interpreted into information on the nutrition status of the province.

This was so until 1980, when the emphasis in data analysis began to shift from the headquarters to the provinces and then slowly to the districts. But even then, the level of skill of the staff at the provincial and district levels is not very high and hence the need for intensive training.

In Lusaka the information once processed and analysed is used for national policy and planning. The staff at the province and district have access to the information through reports from the head office.

Further Limitations of the Existing System

Data

One of the problems of the present system is simply that the information which is available is on hospitalisation, i.e., children who go to the health centre for treatment. Information on the nutrition status of all the children population in the catchment area of health centre is not known.

Furthermore, there is no information on the incidence of first degree malnutrition for the 0-5 year child population on a continuous basis. The perimeters of the problem of malnutrition were clearly established by the 1969-72 Nutrition Status Survey. The Ministry has through its annual reports clearly related child mortality to malnutrition as part of the cause. It is necessary to carry out in a more systematic manner

surveillance of the incidence of malnutrition in particular areas of the country in order to gain further understanding of malnutrition.

Training Staff

The staff members who collected data on malnutrition are not trained to do surveillance. The staff are medical professionals and paraprofessionals assisted by unskilled staff.

The success of surveillance will, to a great extent, depend on the orientation of staff who will be involved in collecting, processing and analysing data.

Intervention Programmes

The nature of intervention programmes depend on the information available or generated through the surveillance system. There is a relationship between surveillance and intervention which cannot be overlooked. The nature of intervention will be determined by the type of information which is available to planners. The question then becomes how the present intervention programmes developed by Ministry could be modified? Adequate information on the incidence of malnutrition is needed if the Ministry is to achieve two objects (a) conserve resources and (b) achieve the desired impact on the problem.

Since, 1980, however, the Ministry of Health and the National Food and Nutrition Commission have embarked on a training programme of medical staff so that they appreciate the importance of data collection, analysis and interpretation. The relationship between nutrition surveillance and intervention programmes are also being stressed to the staff involved.

Problems Encountered in Practice

The problems encountered in practice are many and varied but in the Zambian case I'll specifically refer to observations of Chikamba and Kwofie 1977; John Ngwisha 1980; and James S. Austin 1978.

Based on the observations made by Chikamba and Kwofie 1977, in the Eastern and Northern Provinces, the following weaknesses were observed in the existing data collecting system:

- i. There is no uniform format for data collection in Health Centres.
- ii. The quality of scales is quite poor.
- iii. Data presentation in clinic registers leaves much to be desired.
- iv. Data analysis is nonexistent.
- v. There is no uniform system of reporting the results.
- vi. Data at the headquarters is too aggregated for meaningful planning purposes.
- vii. It takes too long to analyse data at Headquarters of the Ministry.

There are a few other weaknesses which have made the present system a little bit ineffective. What is required is improving on data collection through training of medical personnel at the clinic level. The data analysed at the district level should be used in making decisions as to what intervention programme should be embarked on. The information should also enable provincial and central decision makers to distribute meagre resources accordingly. According to Ngwisha 1980 the staff who presently handle data collection are low in capability and are without

the necessary orientation. There is need for intensive training and orientation for this level of staff and their immediate supervisors. This is crucial to the success of the project since surveillance is not strictly speaking a curative function but a preventive function. Staff at the health centres have a curative orientation.

The Medical Assistants and Zambia Enrolled Nurses who are involved in the project should be well briefed. It is necessary that they gain complete acquaintance with the surveillance project. The self-analysis which is part of the system will depend on the capability of these workers to transform the data from raw frequencies to understandable percentages of trends for an age cohort in the sample. This requires some skill in table analysis.

The staff at the Provincial Medical Officers' office, have familiarity with the manipulation of figures and reading of tables. The only orientation they need is familiarity with the objectives of the project and its operation from bottom to top.

Although Jim Austin 1978, has never been to Zambia, what he had to say tallies very well with the observations of Chikamba et al. at the National Food and Nutrition Commission. According to Austin, another point of concern regarding evaluation resource availability is worth emphasizing. The budget constraints force managers to seek ways to economize. One risk in this process is that the task of collecting evaluation data is piled on top of the many other duties of project personnel.

The idea is to get economies of scale out of the fixed cost of personnel, the result is often to condemn an evaluation to failure. The

temptation is to pass evaluation data collection buck all the way down to the village level worker along with the tasks of family planning, counselling, nutrition status surveillance, health clinic outreach, midwifery and public health and nutrition education.

In the euphoria of "integrated rural health program" and "community based efforts or Primary Health Care" and the search for "low cost delivery systems," the "barefoot doctor" has been discovered and heralded as "The Way." In fact, the increased use of paraprofessionals is one of the most promising avenues, but the fear is that the stampede of the floundering planners down this path will over burden, if not overrun, the field level workers. Their available time is extremely scarce given their many duties, especially if they have large distances to cover and poor transportation. They might well be able to serve as effective and efficient evaluation data collectors, but their time availability for this additional task must be verified before imposing it.

The other problem Chikamba and Kwofie 1977 observed is that of lack of motivation. If the staff in health centres do not understand clearly the rationale for data collection task, sufficient motivation may not exist to do a good job. Nutrition Surveillance System should not be regarded as a form filling exercise. On the contrary, it is the key to better, meaningful and beneficial nutrition intervention programmes.

References

1. Austin, J. E. The Perilous Journey of Nutrition Evaluation. American Journal of Clinical Nutrition, 31, December 1978, pp. 2324-2338.
2. Vamoer, A. P. Zambia National Food and Nutrition Programme. Nutrition & National Policy, edited by Beverly Winikoff, pp. 362-389.
3. Ngwisha, J. Nutrition Surveillance in Zambia. Report of the Seminar held at Mwachisompola Health Demonstration Zone, May 30-4 June 1980.
4. Chikamba, C. Y. & K. Kwofie. Nutrition Assessment of Eastern & Northern Provinces Reports, May 1977.
5. Qureshi, R. U. Nutrition Improvement an Issue of Development. Paper prepared for the Workshop on Goals, Processes and Indicators, UNU, MIT, 1979.
6. Kwofie, K. & Chikamba, C. Y. Maternal Nutrition: A Reconnaissance Study of Nutritional Surveillance of Pregnant Women in Zambia. 1978 Mineo.
7. Beghin, I. Nutrition and National Development Planning. Paper presented at the Symposium on "Approach to the Solution of Nutrition Problems," Ruschin Zurich, 1978.
8. Field, J. O. & Wallerstein, M. B. Beyond Humanitarianism: A Development Perspective on American Food Aid, MIT.
9. Field, J. O. & Ropes, G. Development in the Egyptian Governorates: A Modified Physical Quality of Life Index. L Egypte Contemporaire, 1979.

SOCIAL AND NUTRITIONAL SURVEILLANCE IN EASTERN & SOUTHERN AFRICA

K. Williams and J. Mason

INTRODUCTION

Substantial developments are taking place in Eastern and Southern Africa to improve available statistics on social conditions. These often include indicators of nutrition, in particular nutritional status of young children.

At the same time, a number of initiatives have been taken to develop information systems specifically on nutrition, known as nutritional surveillance systems. These also include socio-economic and environmental variables. These interests have now substantially merged in practice; moreover, it is essential to set up integrated- or complementary- systems and to avoid duplication and competition. Hence, we have suggested reference to social and nutritional surveillance.

The purposes of such surveillance are to provide information useful for planning at various administrative levels; also for evaluation and, in certain cases, for early initiation of specific interventions. Therefore, the starting point needs to be how to improve social and nutritional conditions through government and agency actions, and only then to consider the information needs.

A great deal is talked about in development circles related to nutrition, and the terms nutritional planning and nutritional surveillance are nowadays commonplace. What is sometimes less well understood is that malnutrition is a function of maldevelopment, - it is both an indicator of development gone wrong and a problem in its own right. However, it is a problem which can only be tackled within the context of development planning - nutritional planning does not mean anything by itself. What is important, and this should be a primary role for those with responsibility

for nutrition, is to sensitize governments, policy-makers, etc. to the nutritional implications of the kind of development planning they are embarking upon and already involved in. Viewed in this context, the definition of and the role that nutritional surveillance has to play become easier to specify, though not necessarily to operationalize. It follows that nutritional surveillance must encompass a wide range of agro-socio-economic factors and is necessarily intersectoral in nature. Part of its role must be to monitor this wide range of factors to ensure that the goals of development are balanced, so as to achieve not merely purely economic and agricultural growth but to benefit social welfare and health as well.

The major purposes of this workshop are:

- A. To support the development of information systems covering nutritional and social indicators, by exchange of experience between those involved in this field, with emphasis on operational aspects and problem solving. Specifically, to:
 - Clarify the role of nutritional surveillance;
 - Identify needs for data at various levels of the planning process;
 - Provide guidelines for developing feasible, manageable, and relevant systems which can provide the kinds of information needed to have an impact on development and more direct intervention programs.
- B. To further regional cooperation in this area, for example through:
 - Exchange visits
 - Training (in-country, regional, international);
 - Information and document exchange, etc.

This multipurpose objective can, we believe, only be achieved by drawing on the experience of countries who are working in this area, by examining the systems which exist, trying to clarify their objectives and looking at the operational and logistical problems which they have encountered.

The brief outline which follows is intended to identify some of the issues which might be taken up or borne in mind during our discussions, which will mainly focus on the country papers, and falls under two headings: purposes, and systems.

Purposes:

A. Planning

- national
- decentralized
- community

B. Program Management

- routine
- emergency

C. Research

Systems:

1. Hierarchical administrative information systems (mainly through health based sources); the more traditional structure are now developing towards more experimental systems with filter mechanisms.
2. Non-hierarchical (nested) structures - separate collection systems focused directly to the needs of each level; with increased emphasis on community participation.
3. Survey programs.

PURPOSES

A. Planning

The level at which information is required depends on where decisions are being made on policies and programs. There is gathering momentum towards decentralizing planning in the region. This itself demands more attention to suitable data: more disaggregated results calling for larger samples and/or increased use of administrative or census data; at the same time, fewer and more carefully selected variables will be needed to keep the data collection and particularly analysis exercise with reasonable bounds.

National decisions have profound effects on social and nutritional conditions. These range from broad resource allocations, by administrative area (e.g., province or district) and sector (e.g., health/agriculture), to policy guidance within sector (e.g., curative/preventive health, cropping policies), to non-programmatic measures (such as food price control, minimum wages, etc.).

A certain data base is needed to provide for better informed decisions at this level, in order to, for example;

- define areas of need and their particular problems;
- determine how these needs are changing;
- estimate the likely effects of decisions on those in need, and hence provide guidance on these decisions

The data base for this, at its simplest, involves tabulation of selected indicators by area, by socio-economic group of concern, and by biological status (e.g., infants, mothers, etc.).

A number of countries in the region are able to regularly produce such outputs, and others will build these up from more disaggregated data used

for decentralized planning. Some examples follow. Kenya has available maps for child mortality and certain endemic diseases from the census; and is investigating specific problems such as the effects of cropping patterns from its integrated rural survey data. Malawi has nutritional status data available by Agricultural Development District, the exact uses of which have yet to be decided. Ethiopia is now in a position to provide a comprehensive range of agro-socio-economic data for its planners and has had considerable experience in experimenting with certain aspects of nutritional surveillance through the work of ENI and the Early Warning and Drought Assessment Systems which it has developed. Botswana with its well-established agricultural data base and its clinic-based nutritional status reporting system is now embarking on a Continuous Household Integrated Program of surveys (CHIPS). Tanzania has for many years through the TFNC been in the forefront of tackling the conceptual and practical issues involved in nutritional surveillance. Uganda's innovative developments in its Nutrition Scouts program have provided extremely useful experience for incorporating nutritional surveillance activities in national primary health care programs.

Decentralized planning requires devolving the responsibility for allocation of resources to lower administrative levels: as examples, in Kenya, this is to the district level; in Ethiopia, to the Woreda level and hence to Farmers Associations; in Tanzania, to the regional, district and village levels. The data then need to be meaningful below this level, i.e., for within-district planning, results by least sub-district are required. District-level data can be useful for provincial or national planning.

This level of planning involves choices somewhat more restricted than nationally, but more directly linked to implementation. For example, food prices cannot generally be controlled by region within a country. However, both the activities of line agencies, (e.g., health, agriculture) and the design and control of development programs are appropriately planned at this level.

The purposes of nutritional surveillance for decentralized planning are thus to guide the targeting and design of programs area by area. Decisions may be similar to those nationally - e.g. type of health care, cropping policy for agriculture development, eligibility for credit and other production inputs, etc.

Community level planning applies to programs that are managed by communities themselves - in Ethiopia for example, by the Farmers Associations; in Tanzania by villages. These require basic data on, for example, agricultural production and nutritional status - primarily as management information for the community itself. This purpose, as others, depends on how far communities are effectively organized to make decisions and thus control their welfare.

B. Program Management

The purposes discussed are, of course, all intervention oriented, but it is useful to make some distinctions between the kinds of interventions with which nutritional surveillance is concerned.

One type of intervention which is becoming more common is village - level based, and uses nutritional surveillance to promote awareness, understanding, motivation, etc. Activities in Tanzania provide an example. This is closely related to but not synonymous with health

education and primary health care. As such, nutritional surveillance at the community level should be viewed as an active participative process and not as a passive response to information needs as viewed from above. It is perhaps not exaggerating the point to say that nutritional surveillance must be a grassroots-bottomup process if it is ever to become an effective input into development planning.

Such interventions are clearly related to decentralized planning. However, it is usually more feasible to evaluate the effects on social and nutritional conditions of specific localized programs, than at for example national level. This use of nutritional surveillance for program management also requires collection of data on program delivery and targeting; indeed, such "process data" are themselves essential for any program monitoring and evaluation. A potential purpose of nutritional surveillance then becomes the control of programs during their implementation.

Finally, experience shows that in certain situations, early warning and intervention programs can successfully be set-up locally in drought-prone areas to prevent the effects of human nutrition. This is our experience in Indonesia. In Ethiopia activities are being developed with this objective.

C. Research

The main research needs for decision-making at any of these levels concern going beyond descriptive statistics of social and nutritional conditions, to draw conclusions on causes of problems and effects that can be ascribed to programs. These conclusions are important:

- for policy guidance (which approach is most relevant to preventing malnutrition? e.g., supplementary feeding or investment in production)

- for designing additional measures (e.g., it appears that highly productive villages in certain areas are associated with high levels of malnutrition - we need to know why in order to intervene)
- for building up knowledge of the effectiveness (and cost-effectiveness) of different intervention programs. (This requires knowledge of the net outcome of programs - that change in outcome that can plausibly be ascribed to the program, in relation to cost)

In part, this research can be undertaken by more advanced analyses of data produced by surveillance. These studies are often best undertaken as separate exercises of secondary analyses, not necessarily in the same time-frame as the regular descriptive statistical output. Sometimes, however, further indepth study of a non-statistical nature (case-studies, anthropological and ethnographical) are needed. Rarely is it appropriate to carry out further sample surveys for this purpose.

SYSTEMS

Nutritional surveillance as far as its quantitative aspects are concerned must utilize a variety of different information sources and data collection systems. In practice, there does not appear to be very much similarity between countries in their approach to this issue but the discussion below does try to cover, at least for the participating countries in this workshop, all the systems which seem to be being utilized. Participants might also find it useful to refer to the Social Statistics Bulletin, Vol. 4, No. 4, 1981, which describes the Costa Rica System, as well as to the other background material provided.

A. Hierarchical administrative information systems

These are mainly health reporting systems utilizing clinic, health centre, health station, etc outpatient data and often in the case of young children, rely heavily on MCH programmes. While there are differences in the organization of their information systems, they tend to be periphery-centre types of structures in which the information flows from the field to the central ministry with little or no summary or utilization at intermediate planning levels and almost no feedback. However, with the growing dissatisfaction with these systems a number are being restructured in an attempt to make them more responsive to management and planning needs.

Again the model is essentially periphery-centre but with in-built filter mechanisms so that only summary data is passed on to the next level. Again, the utility and the utilization of such data at the various levels in the planning hierarchy is variable.

B. Non-hierarchical information systems

There seem to be two types of these which exist and it is perhaps useful to make a distinction between them. The first type which one might call "informal" results from either the lack of relevance of the hierarchical data flows and/or from either the lack of feedback or the time-lags in the feedback system. (There also exist cases where the hierarchical systems bypass completely the intermediate levels in the planning process.) This type of informal system tends to be more oriented to administration and control but does also contain useful information which can be utilized for nutritional surveillance. A number of issues need to be discussed vis-a-vis these informal systems which although broader in scope than the specific objectives of the workshop certainly impinge directly on the setting up of nutritional surveillance systems.

Among these are the desirability and feasibility of "formalizing" these informal systems to make more effective planning decisions at the other levels; the assessment of the traditional systems in the light of what is actually happening; the wide variation which exists among the informal systems due to individual interest, ability, etc and to their natural reflection of local problems.

The second type of non-hierarchical system, which we may term formal, are those which are specifically encouraged or set up (usually at village or community levels) in order to facilitate local levels needs assessment, planning, etc. Such systems may be purely (in rural areas) biased to agricultural production but may also include health related information. The situation is perhaps not as clearcut as it would appear from the above explanation as often, especially in the case of health where a PHC programme is being undertaken, such local level systems are also part of either traditional or experimental hierarchical administrative systems and there is a danger that they will serve the hierarchical demands to the detriment of the local level. Another issue which is of relevance when discussing such systems is the role of community participation which is of particular importance to nutritional surveillance.

C. Survey Programmes

There is now wide experience in conducting simple anthropomorphic surveys, especially in this region, and a general recognition that these are most cost effectively carried out in conjunction with ongoing survey programmes. There are, of course, more important benefits to be obtained by so doing as one may then undertake more useful analyses, utilizing the integrated data file, into the relationships between a wide range of agro-

socio-economic variables and indicators of nutritional status. Nevertheless the question needs to be raised as to the value of such surveys, especially if they are not integrated, in providing useful information for policy and planning purposes in terms of developing strategies which will have more beneficial nutritional effects.