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REPORT OF WORKSHOP

ON

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

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

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I. INTRODUCTION

General Background (extracted from Reference 1)

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.

The need to prevent malnutrition is receiving increasing attention, and the terms "nutrition planning" and "nutritional surveillance" are becoming commonplace. It needs to be appreciated that malnutrition is a function of maldevelopment - it is both an indicator of development gone wrong and a problem in its own right. Malnutrition can only be tackled within the context of development planning - nutrition 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 the role that nutritional surveillance has to play becomes easier to specify, though not necessarily to operationalize. It follows that nutritional surveillance must encompass a wide range of agricultural, social and economic factors and is necessarily intersectoral in nature. Part of its role must be to monitor this wide range of factors, and to use the information 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.

Purposes of Workshop

The major purposes of the workshop were:

1. 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.
2. To further regional co-operation in this area, for example through:
 - Exchange visits
 - Training (in-country, regional, international)
 - Information and document exchange, etc.

These objectives could best be achieved by drawing on the available experience in countries in the region. Participants from seven countries - Botswana, Kenya, Malawi, Tanzania, Uganda, Zambia and Zimbabwe - attended the workshop. A list of participants is given in the Annex. Short background papers were prepared by participants on the surveillance activities in their countries in the following format:

- (a) Purpose of system
- (b) Description of system
- (c) Problems encountered in practice.

A list of these papers is given in the references (Refs. 2-7). The papers are being compiled and will be available from CNSP and/or UNICEF Regional Office, Nairobi.

The following outline was suggested to help identify some of the important issues for the discussions, which for the most part focused on the background papers:

1. Purposes:
 - a. Planning:
 - national
 - decentralized
 - community
 - b. Program Management:
 - routine
 - emergency
 - c. Research

2. Systems:
 - a. Hierarchical administrative information systems (mainly through health based sources).
 - b. Non-hierarchical (nested) structures.
 - c. Survey programs.

Purpose and Outline of this Report

The purpose of this report is to summarize the discussions and ideas exchanged during the Workshop on Social and Nutritional Surveillance in Eastern and Southern Africa, held in Nairobi, Kenya from 17 to 19 May 1982. After initial introductory remarks, country background papers were presented. Following general discussion of these papers, working groups were formed on the second and third days to explore more specific issues. The conclusions were then discussed by the group as a whole. The report of these discussions is conveniently structured in the same way as the working groups were defined, and is given in section II. Synthesis of the major ideas and issues are presented in section III on overall conclusions. Major unresolved issues and research priorities were also identified, given in section IV. The section (V) on what to do next includes suggestions for institutional support, and training needs. This report on the exchange of ideas and experiences is intended to help lay the basis for future work and to strengthen co-operation within the region.

Agenda**Ref.****1. Monday, May 17, 1982****a.m. Opening remarks and introduction****K. Williams
J. Mason****Presentation and discussion of
background papers****Zambia 7
Tanzania 5****p.m. Presentation and discussion of
background papers****Malawi 4
Botswana 2
Uganda 6****2. Tuesday, May 18, 1982****a.m. Presentation and discussion of
background paper****Kenya 3****p.m. First session of working groups****Plenary discussion on results of
working groups****3. Wednesday, May 19, 1982****a.m. Second session of working groups****Plenary discussion on results of
working groups****p.m. Overview discussion****- unresolved issues****- where to go from here****Closing remarks****K. Williams**

II SUMMARY OF DISCUSSIONS

Decisions, resources and data needs at different administrative levels.

On Tuesday afternoon, three working groups and then the whole group discussed: **what decisions affecting food and nutrition were made, what options and resources for improving nutrition existed, and what data and analysis were needed for these decisions at household, village, district, provincial and national levels.** While the scope of discussions varied, as did specific examples, general agreement emerged on most points summarized below.

Data should be collected to make decisions, not as an end in itself. A significant modification to this statement is that data might stimulate decision makers and have a catalytic effect, so might be worth collecting, even if an immediate decision is not involved. Many problems with data collection exist because the originators do not appreciate its use because they do not use it, nor does it appear to them to be used by the higher organizational levels to whom it is passed up.

The type of data needed varies by level. At the most decentralized administrative levels (village, district), simple observation and qualitative or impressionistic data may be sufficient. At more central levels (e.g. district, province), more quantified and (somewhat) more aggregated data are needed. At the national level, there is a need for multisectoral data disaggregated for analysis (e.g. by age, sex, region, socio-economic status) but re-aggregated for presentation. A major issue was that while very often the observations needed for decisions were being made, their systematic recording, collating, transfer and presentation were not being accomplished. The analysis of data was a major bottleneck for several reasons. Sometimes no, poor, or inadequate data were available. Multisectoral integration and analysis at higher levels was increasingly needed and this was difficult, because of lack of analytical talent, or of data processing capacity, or of comparable data from various sectors. While the district level lacked sophisticated analytical talent, the concreteness of the problems at this level would allow better solutions if modest improvements in training could be combined with better availability of more pertinent data and

better data presentation. At the national level, lack of analytical and computing resources were suggested as bottlenecks, although interministerial cooperation was also seen as a difficulty.

Concern was expressed that even with satisfactory data and analysis, political or other pressures would lead to poor decisions. The very high share of health expenditures going to hospitals rather than health posts or preventative programs was given as an example.

At the **household** level the primary contribution of a health or extension worker was his skill in diagnosing a problem, giving advice and occasionally providing small material assistance (supplemental food, drugs, seeds). The ability to refer the family to someone else was also important. Data needed were mainly the direct observation of the problem.

At the **village** level, some stress was laid on the role of the village councils which function in some countries. These councils, in cooperation with lower level staff, could address a broader range of problems and tap larger resources. Examples given were that the observation of many diarrhea cases might lead to a village well, or widespread crop failure might lead to requests for food assistance, then for new crop varieties which are more drought resistant or require shorter growing seasons. While in some cases village resources might be fully adequate, in others some more central assistance was needed. As other examples, a daycare center to improve child care (if mothers were working on cash crops) could be done by the village itself; the well might require district technical advice; but a bad drought might require entirely external assistance.

At the **district and provincial** levels relatively modest improvements in procedures and training could lead to better decision-making. Trained specialists well above the village norms were available, and significant resource decisions could be made. For example, some major investment decisions or changes in the content, direction, and level of services were possible. Here too, explicit cutting-across sectors to get at better options was both organizationally and financially feasible in most countries. It was noted that much data flowing

through provincial levels now serve national decision needs and are not analysed where they originate.

The **national level** was unique in several respects. At this level international resources may be more readily tapped. Most research and monitoring and evaluation occurs here. Overall goals, objectives, strategies, programs, and policies are formulated. Resources for responses to major emergencies (droughts, floods, etc.) usually originate here, as few districts can "insure" themselves against unusual or exceptional catastrophes. Disaggregated multi-sectoral analysis is necessary, as is simplification and reaggregation for presentation.

Surveillance systems in relation to different nutritional problems and resource availability.

On Wednesday morning the working groups met to examine how nutritional surveillance systems could operate under varying situations of malnutrition (PEM) and potentials for intervention. Again these conclusions were then discussed by the whole group. The three different circumstances that were chosen were as follows:

- (a) Cyclic/periodic problems of acute PEM (e.g. hungry season, drought)
- (b) Chronic problems of PEM in an area with on-going development programs.
- (c) Chronic problems of PEM in an area with no development programs, but where regular government agencies (e.g. MCH clinics) are operating.

The focus in each case was upon decision making and activities at the **district level**, since this represents an intermediary between village and central levels.

The format for discussion in the three groups was initially agreed as follows:

- Identification of problems and potential decisions
- Resources to implement decisions
- Variables: sampling, measurement, recording and flow, analysis, presentation

- Decisions to be made

The discussions are summarized for the three situations (a-c) below, derived mainly from the working groups' reports.

(a) **Cyclic/periodic problems of acute PEM.** The issues to be discussed were those of data collection, collation, analysis and use for periodic nutrition crises.

The group decided that both famine warning and seasonal PEM were topics which needed discussion, since both were thought to be major problems in the region. It was immediately clear that major differences in the existing depth and breadth of data collection across the region demanded a particularistic approach to proposed solutions. For example, a famine warning system would ideally collect data on area planted and expected yields, but these were often not available. Rainfall data were more often collected, but failed to correlate well with yields much of the time. Changes in food prices (except for low prices for livestock) similarly often failed to reflect approaching crisis if food prices were controlled by government (or imports) or if there were virtually no markets. In some cases, such as in Malawi, agricultural agents could not only collect basic agricultural data, but also sample households for information on food stocks, meal frequency, and patterns of staple consumption. Such data were very useful in identifying not just a production shortfall, but also when, how badly, and where a consumption problem was emerging. (Savings in livestock or food stocks, "drought" crops, or other income sources help buffer some families from fluctuations in major crop production.)

When virtually no agricultural data gathering exists, as in parts of Zimbabwe, there was disagreement over what role clinic staff could play. All agreed that height/age or weight/height measurements could document, but not predict, a serious acute episode. Such measurements were useful for allocating relief supplies after the fact, but not in anticipating when food or public works funds should go in the earlier phases of the problem. There was disagreement about the validity or value of clinic estimates -either quantitative or qualitative - of agricultural conditions. Most agreed they were better than no information, but unlikely to cause major action themselves unless a system were set up specifically to act upon the data.

Because most of the participants were connected with clinics, and because seasonal PEM was likely to be handled partly through clinics, a major amount of time was devoted to discussing the representativeness of clinic data. In many cases clinic-derived data may not reflect the clinics' catchment area, and checking for numerical and geographical coverage (i.e. percentage of population served and mapping of patients) was necessary. Quick sample surveys might give more definitive information but are costly. Sampling of clinic records was desirable if the caseload was high and staff short, though the best way to do this to avoid biases (shading data to present the worst cases) was uncertain. Adding a statistical clerk at either the district or health post level, improving work management, or providing modest training to existing under-utilized staff may be one way to improve record keeping and collation.

The data themselves, preferably in as simple a form as possible, such as X children under some cutoff out of Y measured this month for, say, 6-24 month-olds should be sent on to the District Office. (Kwashiorkor and marasmus cases should also be reported, but separately). Sometimes a district statistical officer can handle the data, but otherwise the most interested ministry official - usually health - will have to take the initiative in combining the data from several health posts, and presenting and reporting them. In normal times, district committees need only get simple quarterly reports stating that in this quarter as opposed to the last several, the following numbers (preferably standardized for an average number of visits)* were malnourished. If conditions deteriorated, more frequent reporting, say monthly, would be necessary.

A district committee should be able to intervene in a number of different ways, using both its own resources or calling for more from higher levels. Possible interventions mentioned were expanded child feeding (or general food distribution in famines), public works, cropping changes, improved storage and processing, irrigation, water and sanitation, and education. Obviously, many of these lie outside the health ministry and may require resources not normally available to the District.

* Let us say 100 out of 4,000 were malnourished in one quarter while 110 out of 4,400 were observed in the previous quarter. The officer could say his estimate of those malnourished remained at 25/1000 visits in this quarter, rather than reporting a change.

There was not time to discuss the best way to incorporate non-health data into the District Committee's deliberations, although these may be the most relevant for dealing with famines. This might be the responsibility of the agricultural district officer, or the health officer may wish to take on the burden of co-ordination, though additional training would then be needed.

(b) Chronic problems of PEM in an area with ongoing development programs. The four countries from which specific examples were drawn were Kenya, Malawi, Tanzania, Zambia.

Two examples of district development programs were taken:

1. A paper mill to process wood
2. An agricultural development program

Potential decisions were identified as an illustrative series of issues. The resource allocation implications were always either to: (a) reallocate program resources, or (b) request additional resources. These are indicated by (a) or (b) in the list of issues in Table 1. For all of these issues, prevalence of PEM by location and socio-economic group was needed to support the decision-making. Some need additional data on such factors as dietary patterns and food production (marked by * on Table 1).

Nutritional status was chosen as the variable of interest, to be tabulated by various definitions of socio-economic groupings as shown in Table 2. It became clear that the best that could be usually expected would be prevalence of malnutrition - by location (e.g. village) and occupation group. The type of output needed, say every 3-6 months, could be a tabular report for each location giving the prevalence of malnutrition in each occupation group (e.g. farmer, laborer, landless, etc.).

The possible sources of these data considered were:

1. Clinic: Road-to-Health Card (includes occupation of family head in most countries)
2. Agricultural Extension Workers
3. Probability Sample Survey

Only clinic and agricultural extension workers (AEW) were likely to usually provide sufficiently disaggregated data for regular district planning. Probability sample survey data (e.g. as Kenya) would be important for providing linked data. The two possibilities of **collecting** data were:

1. Clinics: record and tally occupation and numerical weight for age.
2. Agricultural or other extension worker*: use agricultural data to include subjective assessment of nutritional status (normal, thin, marasmic, oedematous).

* Note: Malawi - AEW; Tanzania - MCH - aides; Zambia - AEW (not yet).

Weight data are obtained at clinics, but the Road-to-Health card remains with the mother. Recording all weight age would be unnecessary and impossible, and thus sampling would somehow be needed. (Representativeness was not considered - the problem was acknowledged, but solutions discussed elsewhere.)

Sampling of clinics could be done by:

1. Recording and tallying all weight/age data, 1 day per X days (clinic staff).
2. Recording and tallying every nth child at time of weighing (clinic staff)
3. Recording and tallying every child on selected days by mobile statistical clerk (not clinic staff)

The tallying sheet would need to allow for tallying by both occupation and location (e.g. village).

The next consideration which was recognised was the **analysis and presentation of data at the district level**. This level, in all countries considered, was the lowest at which a trained government employee was available to tabulate data, i.e.

Tanzania: District MCH Co-ordinator

Malawi: Senior Agricultural Extension Officer

Kenya: District Statistical Offices (in future)

Zambia: District Health Co-ordinator/Public Health Nurse

These individuals could provide 3 to 6 monthly tabulations of PEM prevalence by locality and/or occupation. Accumulations of these over time could give information on changes. There would be a need for training and periodic support from more central administrative levels.

All four countries considered either had **survey systems** that were already including nutrition modules (NASSEP - Kenya; ASA - Malawi), or could do so in the future. There was more experience in this than in capturing data from clinics or in suitable collection by agricultural extension workers. Probability sample surveys give the only source of representative data on the links between nutritional status (at the individual or household level), sources of income, and other socio-economic factors.

Consideration was given to equipment for collecting data on nutritional status (e.g. weight and height). The group felt that Salter scales were adequate, however, since there often appears to be a supply and cost problem, the possibility of manufacturing them in countries, at say the regional level, should be investigated. Height/length boards are necessary, and these could probably be locally manufactured as well.

(c) Chronic problems of PEM in area with no development programs, but where regular government agencies are operating.

This group was concerned with chronic PEM in areas where there were no new investments being made in the sense of development programs. The context of the discussion was the mandate that each district must be self-sufficient in food; for example in Tanzania where each family must either have an adequate salary or adequate land.

The group took the structure outlined in the Tanzanian report - i.e. periodic meetings which are chaired by the District Development Director, which include ward secretaries representing the views of the villages, as well as including all the government district officials of the different agencies. These groups review the nutritional problems in the district and take decisions on programs which affect nutrition; they are called the Surveillance Co-ordinating Committees. The district chosen was one in which coffee is the cash crop and bananas are the subsistence crop. This is a rich area with paradoxically much malnutrition.

Landless or inadequately landed had been encouraged to emigrate to more sparsely settled regions. Nevertheless malnutrition was still a problem. The question therefore was - what decisions could be taken to remedy the situation at the district level?

It quickly became apparent during the discussion that the decisions depended on an understanding of the causes of the persistence of malnutrition. The group was long on hypotheses (fathers drink the money away, parents abandon children to work in the fields, etc.), but short on any data to substantiate the hypotheses. The group decided that this was because the necessary diagnostic information does not now exist in the present nutritional surveillance system.

The overall design of such a system could be as follows: village meetings with villagers and the village surveillance committee could be used to gain insight into why the cases of malnutrition identified in that village occurred. Appropriate questions could then be designed for village health workers to ask

the families of the malnourished children whom they visit. The results would be presented in qualitative form during meetings with the medical auxiliary of the health post, who would then tally the causes. This information would be passed up to the district level which could then marshal resources to attack remediable causes of malnutrition.

This surveillance for the causes of malnutrition would need to be complemented with a further system which could better monitor changes in the prevalence of malnutrition. A system using a ratio of the number of malnourished clinic attendees in a specific age group over the total number of clinic attendees in that age group was proposed. This ratio would need to be aggregated at the district level to give an idea if the overall prevalence is changing, so that one may therefore look for different patterns of causes. Data collection is already done on the Road-to-Health cards. Data capture could be done by tallying in the clinics or sending carbon copies of clinic records to be tallied at the district level.

Some important comments need to be made with reference to systems such as these. The above data systems have never been tried. It is not clear whether the causes of malnutrition change enough over time to warrant an ongoing data collection scheme as outlined. Maybe occasional (every few years) visits by a more specially trained nutritionist or social anthropologist could ascertain the causes and give some ideas of relevant prevalences in enough detail for decisions to be made on the basis of changes in prevalences which occur with certain events (e.g. changes in labor, drought, etc).

III OVERALL CONCLUSIONS

1. Nutritional surveillance data should be collected and analysed to help in making decisions which ultimately will result in improving nutrition or arresting the deterioration of nutrition in a population. Some data collection and analysis is justified to elicit decisions (catalytic

function of data) which may not have been precisely defined beforehand. However, generally it is advisable to identify what decisions have to be made and design the data collection, flow and analysis to best help make those decisions.

2. Decisions about useful interventions (e.g. price control, limits on exports, improving work opportunities, restriction of market availability of non-food items, decreasing availability of "bad" foods, increasing availability and decreasing cost of "good" foods, etc.) all require knowledge about the causes of malnutrition in the population under consideration. It was evident in many of the discussions that there were a myriad of putative causes, and that some of these had little evidence to support them as being major causes relative to other causes such as poverty and inadequate land holdings. Without better substantiated information about the causes of malnutrition, and their relative prevalences, decisions about interventions to affect nutrition are not likely to be useful and data collection for such decisions are a waste of time.
3. Nutrition is multi-sectoral in its determinants and outcomes. To evaluate the effects of nutrition programs, and to predict changes in the nutritional status of the population data must not only measure changes in nutritional status of populations, but they must also monitor changes in the determinants of nutrition. It is therefore rare that data from only one sector will be sufficient to make decisions affecting nutrition. Therefore when multi-sectoral data is required to make a decision, or when options for interventions are multi-sectoral, mechanisms must be sought which have the authority to integrate multi-sectoral data and make multi-sectoral interventions. These integrating mechanisms may well have to be sought at the village, district and provincial levels, as well as at the national level.

4. **Data collection involves:**

- (a) **Sample considerations:** The results from data analysis must be interpreted in terms of the decision to be made. For example, changes in clinic indicators appropriately designed to account for seasonal and other effects on clinic attendance may be adequately representative of changes in the prevalence of malnutrition in a population, and therefore appropriate for deciding on the timing of interventions. The same data may be quite unrepresentative to differences in the prevalences of malnutrition across populations, and would therefore be inappropriate for allocating priorities of intervention across different areas.
- (b) **Measurement considerations and data recording:** Quick, easily standardized methods which only require simple tallies are often preferable to more precise methods which can be easily mismeasured and misrecorded. When the sample size of measurements required is large, and the time the recorder has is small, the method of measuring and recording should be as simple and automatic as possible. Occasionally a few complicated, carefully performed data collection methods can be used which may prove to be more advantageous than more simply collected data. For example, data collected by qualified interviewers from village meetings and from local informants can give information about causal mechanisms of malnutrition, sometimes more easily than from analysis of quantitative data from probability sample surveys.
- (c) **Sample size:** The sample size must be large enough so that the estimates of the parameters of interest (e.g. mean or prevalence, or changes in mean or prevalence are precise enough (small enough confidence limits)) to be useful to the decisions to be made.

Qualitative data derived from a few interviews or village visits can sometimes be more precise than quantitative data on large samples, even though no statistical statement can be made to this effect.

(d) **Data capture:** As discussed above, it may be feasible to capture data on nutritional status (e.g. weight/age) through simple recording/tallying schemes in health clinics; however constraints on the number and time of available clinic staff must be considered. Examples of different tallying methods are discussed in more detail in Section II. The question of the representativeness of these data needs to be considered, with perhaps small, well-designed studies being useful in investigating this. Data may also be obtained from probability sample surveys, and there appears to be accumulating experience in conducting simple anthropometric surveys in the region. These are most cost-effectively carried out in conjunction with ongoing survey programs. Other important benefits may be obtained by doing so since one may then undertake more useful analyses, utilizing the integrated data file, into the relationships between a wide range of ecological, labor, agricultural and socio-economic variables and indicators of nutritional status.

(e) **Data Analysis:** Since decisions are made at all administrative levels, it appears necessary to diffuse analytical capacity at all levels from health post to national agencies. This diffusion may help to prevent bottlenecks which are commonly recognized as major problems in information systems. At decentralized administrative levels, the type of analysis required consists of finding averages, frequencies and prevalences, and producing simple plots, charts and tabulations. The interpretation and use of such descriptive devices should be emphasized. At more central levels, progressively more complex analysis may

additionally be required which may need computing facilities, unlike at decentralized levels where hand tabulation of data is both feasible and desirable.

(f) **Data Flow:** Data flow may be generally grouped into two types of systems: hierarchical administrative information systems and non-hierarchical information systems. In hierarchical administrative information systems the flow of data is from periphery to center - from field to central ministry. Usually only summary data are passed on to the next level up, and therefore the utility and the utilization of such data at the various levels in the planning hierarchy is variable, as is the amount of feedback from top to bottom. Often the lower levels see little use in the data collection and reporting on up. Non-hierarchical (nested) information systems are separate collection systems, largely self-contained, set up usually at the village or community level in order to facilitate local level needs assessment, planning, etc. These types of systems require basic data on, for example, agricultural production and nutritional status, which can be used as management information for the community itself. With these non-hierarchical data flow structures, issues which are relevant to nutritional surveillance include community participation, organization and decision-making ability. Information can also be passed up to more central administrative levels if needed, but this is not the primary purpose of these systems.

The data flow question can be represented as the following matrix:

DECISION-MAKERS	DATA GATHERERS	
	Central	Decentralized*
Central	Kenya	Zambia
Decentralized*	Malawi	Tanzania

*e.g. district, village

When decision-making and data gathering are at different levels, clearly feedback is a potential problem. When at the same level, other constraints such as analysis and interpretation are also important.

5. Nutritional surveillance as defined in this workshop is new in its emphasis on **linking data to decision-making**. There are few examples where such surveillance exists - and these have not been evaluated. There is a great need for more energetic activity in establishing such surveillance in evaluating it, and in exchanging information to help others do the same.

IV MAJOR UNRESOLVED ISSUES AND RESEARCH PRIORITIES

This section includes research priorities, since the unresolved issues all require research as well as other inputs; progress in resolving outstanding issues was the purpose of the research discussed.

1. **Linkage to decision making:** As discussed above, there have as yet been few examples of nutritional surveillance systems which actively link data to decision making. In many places the way one has gone about linking data to decisions has so far been best resolved through a process of having the planners work with data collectors rather than through a specific algorithm.
2. **Intersectoral integration:** So far this seems to best be accomplished through calling meetings of the different sectors by somebody who has the authority to implement decisions across those sectors. This requires a delegation of such authority from a more central level. In general, this issue has remained unresolved in centralized bureaucracies. It has been resolved to a certain extent in Tanzania through the organization of their development committees, and where district-level decision-making is encouraged.

3. **Data Capture:** Although it may be feasible to capture the weight/age measurements that are already taken by some of the sampling/tallying methods discussed, there is little or no experience of this, and we do not know if they will work. It was fully realized that there are too few clinic staff, and that they may be overworked. This means that - maybe realistically and for good reason - they do not give priority to tallying data. This problem needs to be resolved, as does the question of the representativeness of these data. Similar issues were recognized for other data sources (e.g. AEW) at the individual contact level.

4. **Data Analysis:** Data analysis (mainly tabulation) was recognized as a major bottleneck everywhere. Hand tabulation may presently be suitable for administrative (e.g. clinic) data, especially at the district/health post level, however the actual methodology needs to be tested. Computer analysis is usually inescapable at the central level, as well as for probability sample surveys. Training, hardware and software are all constraints which need to be resolved. In the future, micro-computers may be of some help in data analysis.

V WHAT TO DO NEXT

Institutional Assistance

International level: Most African countries desiring external assistance in nutritional surveillance can approach the international agencies. Those that have in the past been supportive of nutritional surveillance include WHO, FAO, UNICEF, USAID, German bilateral aid, and the Nordic countries. UNICEF, and USAID through Cornell University, supported the present workshop, and could be contacted for more details (Ken Williams, UNICEF Regional Office, Nairobi; Vicki Quinn CNSP, seconded to UNICEF, Nairobi).

Depending on the structure of the agency, assistance can be provided by country, regional or central offices. Each agency is able to provide

different types and levels of assistance. Hence, countries needing a variety of external inputs should consider that they may best be obtained from two or more donor agencies, preferably on the basis of a jointly formulated plan.

International assistance can be provided for training of staff, initial planning, strengthening or evaluation of an ongoing surveillance system, or operational research. When formulating requests for assistance, it is important to bear in mind that only the country itself can identify at what levels of the system decisions will be made, what decisions will be made at each level, what resources are available to implement the system, and what resources will be available to respond to problems identified as requiring intervention.

Regional level: Within regions institutional assistance to support a number of follow-up activities could be useful:

- for system design
- for investigating data use, and its improvement
- for investigating and overcoming problems of data capture and data analysis.

Means of assistance in these areas could include:

- workshops
- training courses (short/long, internal/external)
- exchange visits
- document exchange, newsletter etc.
- technical assistance
- pilot research efforts (may need some outside funds)

Also broader institutional support (e.g. for data analysis) not only related to nutrition is needed - a package deal from which nutritional surveillance would be one output.

Training Needs

A principal resource deficiency at all administrative levels was generally felt to be the lack of adequately trained personnel, particularly for data analysis. The capability to record, compile, clean, process, analyse and interpret data must be created at all levels in varying degrees. The best way to meet this requirement is through a hierarchical approach to training whereby the personnel at each level are trained by those at a more central level. This approach disseminates the needed analytical capacity rapidly, provides vital experience to trainers and minimizes the need for expatriate assistance whose expertise is probably only needed and best utilized in training personnel at the national level.

Cornell's training program was briefly reviewed: Master's and Ph.D. programs were possible, and a six-week nutritional surveillance course was periodically available. This could possibly be held within the region. Involving specialists from nearby countries to teach would be one way to increase regional interchange and co-operation. The content of training would have to emphasize certain major points -such as the intersectoral nature of nutritional analyses and solutions, and the need to link data to decisions - as well as technical training for particular specialities. The task of training local data analysts may be made easier with clearly written, illustrated, simplified manuals, particularly if the interpretation and usefulness of data for decision making at the local level is emphasized.

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TABLE 1**Issues associated with district development programs**

DISTRICT DEVELOPMENT PROGRAM	ISSUES:	RESOURCE ALLOCATION IMPLICATIONS
1. PAPER MILL	Do work patterns change - day care?	a, b
	Who gets the income?	a
	What happens to food supply?*	a
	Do food habits (e.g. # meals, or quality) change?*	b
	Is there trickle-down?	a
2. AGRICULTURE DEVELOPMENT PROGRAM	What happens to displaced laborers?	a
	Does cash-cropping decrease nutritional status?	a
	Are new varieties acceptable?*	a,b
	What effects occur with switch from cattle to crops?	a
	Can small farmers and the landless benefit?	a
	Is food storage adequate?*	a, b

KEY: a: Reallocate program resources
b: Request additional (compensatory) resources
* Additional data needed on e.g. dietary patterns and food production

TABLE 2

Variables for assessing district development programs

1. Outcome (Nutritional Status) Weight
 - Height
 - Age

2. Socio-economic Group -
 - Locality/Village
 - Occupation
 - Holding/Tenure status
 - Program Participation
(e.g. Agric. Dev't Program)
 - Education Levels of Parents

ANNEX

SOCIAL AND NUTRITIONAL SURVEILLANCE WORKSHOP _ - PARTICIPANTS

NAIROBI 17 - 19 MAY 1982

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