

Nutritional Surveillance Systems in Kenya

*A Review and Recommendation Report
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BACKGROUND

Food security is becoming an increasingly difficult problem in arid regions of Kenya exacerbated by drought frequencies that have increased significantly over the last ten years. Five major drought periods have occurred since 1984. In addition, HIV/AIDS, conflicts, natural disasters, and worsening climatic conditions and the recent flooding of drought devastated areas all work together to sustain malnutrition indicators at unreasonably high levels for extended periods of time (i.e. minimums of 30% stunting and 20% wasting for the last twenty years.) The impact of these long-term droughts has been particularly devastating in the northern regions, resulting in a large loss of livestock, and displacement of populations in search of food, water and employment. This humanitarian emergency has spurred a frenzy of activity and analysis of emergency response systems. However, there is consensus among nutrition information users in Kenya that there is a need for improved methods of collecting, collaborating, and disseminating nutritional data. Currently, nutrition information is produced by different entities such as ministry departments, United Nations agencies, academic institutions and community-based and non-government organizations (Busili 2003). Additionally, the need to strengthen the integration of nutrition data with other types of information such as food security, health status, and poverty indicators has been noted. Currently coordination between systems is severely limited. For example improvements made by the Government of Kenya (GoK) since 1999 to standardize rapid assessment methodologies have directly influenced food-aid decision-making within the Office of the President. This has been accompanied by an increasing commitment to build up a database of food security and livelihoods information, which can act as a baseline for development assistance planning. However, good nutrition information is not systematically included in this system. Such data would considerably strengthen food security sectoral planning and advocacy in both emergency and non-emergency contexts (OoP 2002). This report seeks to describe the different nutrition and health information systems that exist in Kenya and to contribute to forthcoming workshop discussions concerning technical aspects and ways forward. Preparation of this report benefited from a series of papers listed under additional sources at the end.

There are three main goals in nutrition surveillance as initially put forward by the World Health Organization. These include long term planning and policymaking; program monitoring and evaluation; and timely warning. Generally multiple organizations work within a country to cover various aspects of these goals, sometimes in competition with each other, and sometimes in collaboration. Kenya boasts a variety of organizations involved in various aspects of nutrition surveillance and information collection. Their stated purposes within the WHO framework are as follows:

Table 1: NIS Organizations Purposes with the WHO framework in Kenya

<i>Purpose – primary, (secondary)</i>	CHANIS	DHS	CBS/ Natl	MICS	Area-Level surveys	ALRMP	FEWSNET	VAM/WFP	FIVIMS
Long Term Planning & Policy Making		X	X	X	(X)				
Program Monitoring & Evaluation	X			(X)	(X)				
Timely Warning	(X)				X	X	X	X	X

Clearly according to this diagram, there is not a great of overlap, leading one to believe there is not a lot of competition between organizations for the same goals and resources. However, the degree of collaboration and information sharing between organizations remains a question.

REVIEW OF EXISTING INFORMATION SYSTEMS FOR NUTRITION, HEALTH, EARLY WARNING AND FOOD SECURITY

Currently users of nutrition information rely on a limited set of data sources, with rapidly evolving methodologies and multiple changes in archiving systems. These changes make it difficult to ascertain accuracy and reliability of data within an organization, and nearly impossible to compare data from one organizations findings to another. The GoK/ UN Millennium Development Goals Progress Report for Kenya¹ identifies similar weaknesses by classifying the monitoring and evaluation environment for Goal 1² Under –five malnutrition as “weak” in terms of data-gathering capacities, statistical tracking capacities, statistical analysis capacities and monitoring and evaluation mechanisms. The capacity to incorporate statistical analysis into policy planning and resource allocation mechanisms is however recognised as “fair”.

In 2002 the Inter –Ministerial Committee of Food and Nutrition (ICCFN) was charged with setting up a task force to develop a national nutrition policy. The task force comprises members from government ministries, research institutions and universities and is coordinated by the FNPU in the Ministry of Planning and National Development. The policy contains a number of key objectives, e.g. ‘to improve the nutritional status of women of child bearing age, children under five years of age and to increase the number of infants being breast-feeding in Kenya during the first four to six months of life. Since that time, a health and nutrition working group (HNC) has been developed through the GoK and UNICEF to coordinate all NGO’s and government organizations working in NIS. The HNC meets monthly with regularity, with a high level of participation from stakeholders. Still despite these improvements and the stated commitment of the ICCFN, the nutrition situation has only worsened in Kenya. This paper seeks to identify gaps in the system. Existing organizations currently working in nutrition surveillance in Kenya are detailed below.

Ministry of Health; The Health Information Management System (HMIS), and the Child Health and Nutrition Information System (CHANIS)

In the 1970’s the GoK, with the help of UNICEF, developed a nationwide Health Information Management System. In 1996, the GoK took over 100% of funding through the Ministry of Health, with occasional donations for equipment upgrades through external NGO’s. The HMIS system collects a variety of health indicators from participating clinics country-wide on a monthly basis. This data is then compiled into an annual report with is published and distributed to all ministries. An example could not be obtained. Nutrition data included in the

¹ Kenya Millennium Development Goals progress Report 2003

² Millennium Development Goal 1 : eradicate extreme poverty and hunger.

Indicators include: i) prevalence of underweight children under five years of age and ii) proportion of the population below the minimum level of dietary energy consumption.

MDG 2: achieve universal primary Education.

MDG 4: Reduce Child Mortality.

report is limited to the number of underweight children in the country, and is based on data collected by the Child Health and Nutrition Information System (CHANIS).

CHANIS was initiated in 1978 following the Alma Ata conference with funding from UNICEF and the Government of Kenya (GoK). It was designed to be enhance the child growth-monitoring program, an agenda aimed at preventing malnutrition by maintaining and promoting good growth among 0-5 year olds through education and monitoring which was being initiated in clinics at that time. The aim was to use CHANIS data as a source for monitoring changes in population nutrition.

CHANIS is based on clinic attendance and the monthly reporting of underweight based on child health card growth curves. Growth monitoring data is collected at multiple clinics and hospitals throughout the country. Currently, CHANIS is in operation in all 71 districts in Kenya, with approximately 40% of districts regularly reporting. With less than half of the clinics reporting, data cannot be considered representative of the entire country.

MOH district nutritionists and the CHANIS health team manage CHANIS at a local level. Responsibilities include supervising staff and data collection, and the generation of reports and feedback for local and national distribution on a monthly basis. At the local level, clinic staff determines age of children using MCH cards and the calendar of events method. Feedback and advice is given to the parent if necessary regarding growth trends of the child. Indicators are collected and compiled on a daily, weekly, and monthly basis and include:

1. Weight
2. Age
3. Evidence of Kwashiorkor (based on presence of oedema)
4. Oedema, severity
5. Marasmus (based on medical referral and doctor diagnosis)
6. Number of children exhibiting weight faltering
7. Anemia (based on presence of visual symptoms)

Three forms make up the CHANIS paper chain. At the health center level, form CHANIS I (no example available) is filled out with all compiled data collected from the previous month. Results are summarized on a standard form and forwarded to the PHIS Records Officer; Parish level by the 5th of the month.

At the parish level, CHANIS I forms from each clinic and health center are compiled onto form CHANIS III (no example available). This form simply records the totals reported from each health center without baseline population numbers or data allowing the calculation of percentages of the population monitored. The CHANIS III is delivered at the district level by the 15th of the month. At the district level, the DHIS is responsible for compiling data and recording it on the CHANIS IV form (See Table 2). These forms are then sent to the national level office by the 21st of the month. The NHIS records officer is responsible for final analysis, and dissemination of a nation-wide report, by the 9th of the following month.

Table2: Example of CHANIS IV Form

District	0-11 mos.		12-35 mos.		36-59 mos.		0-59 mos.		Marasmus	Kwash.	Anemia	Weight faltering	Other illness
	Total	U/W	Total	U/W	Total	U/W	Total	U/W					

National level reports are compiled by entering grand totals of all reported indicators into a main computer using Excel. Summaries are produced for district, provincial and national levels, as well as trend analysis-using data from the last two years (See annex 1).

Reporting time from health center to national level per month is less than one month. Reports are disseminated within the ministry with the intention that they can be used to make decisions regarding nutrition monitoring and intervention. According to the design of the program, recommendations should be made for each district with high levels of growth faltering or underweight, which are followed up on by members of the MOH. However, due to staff, time and money constraints, this doesn't usually happen.

Through discussions with representatives from CHANIS and the MOH the following weaknesses in the system were identified:

- Low priority for collection and distribution of nutrition related data
- Shortage of basic tools including reporting forms and scales at the health center level
- Limited training in data management, data entry, analysis and presentation of results
- Lack of emphasis on importance of nutrition monitoring at all levels
- Lack of long-term, continuous supervision and monitoring and evaluation of entire system at all levels.
- Past research has shown that once children's vaccinations are completed, (at about one year of age) clinic visits become more infrequent, making monitoring of progress of children over the age of one even more difficult.

At the time of this report, outputs were difficult to find, suggesting that data may not be adequately disseminated. In fact, according to our research, all data preceding 2000 has disappeared. What data is available is poorly analyzed and presented as can be seen in annex 2. These tables seem to combine repeated measurement data (growth faltering) with cross sectional measures (marasmus, kwashiorkor, underweight); and new and repeated cases may be combined. More importantly, however no denominator is given, for either the totals weighed (which *may* be the total of 'constant/faltering' and 'others'), or for the population of the catchment areas. Nonetheless, these outputs do indicate that data are captured, tallied, and compiled, so that there may be a basis to develop.

Interestingly, built into the CHANIS is a system of self-reporting, where monthly accomplishments and failures are recorded and distributed along with national level data to all ministries, and district, parish, and local level participants. An example can be seen in annexes 3a,b. This is something that could be expanded to mimic Uganda's Weekly Epidemiology Report, a weekly bulletin distributed by the HMIS system in the national newspaper to enhance accountability and peer pressure in order to improve participation and reporting at the local and district level.

NATIONALLY REPRESENTATIVE SURVEYS

*National (CBS), DHS and MICS surveys*³.

Data from these surveys are included in the paper on recent trends in the Horn (Niphorn2 report), and in the first report (Niphorn1). In general these surveys provide the key data for long term monitoring of nutritional trends. DHS and MICS are undertaken with support from USAID (DHS, through Macro International), and UNICEF (MICS), implemented by (CHECK) the Central Bureau of Statistics (CBS). Primary analysis is done at CBS with inputs from external consultants. Kenya has, as a result of these surveys, among the longest time series of nationally representative nutritional data of any country in Africa.

Recent trends from national surveys, at province level, are in the 'Niphorn1' report, fig 2.8 and Annex 3 (Chotard et al, 2006). These are being analysed in relation to drought and HIV, paper in preparation.

The Government of Kenya, UN, World Bank, and various research institutions support the production of annual publications that analyze the economic performance of various sectors of the Kenyan economy and present both current information and trend analysis of the past three years. These are largely based on national surveys carried out by CBS, which has a permanent field force and devolved administrative set up (provincial and district statistical offices, etc) for this purpose. Subject areas covered include domestic economic performance, education and health, environment and natural resources, agriculture, transport storage and communication, and other economic indices. The analysis is done by the Central Bureau of Statistics and by partner organizations, depending on the topic. Data is disseminated through yearly reports, available in the library of the Central Bureau of Statistics for 900 ksh. The most recent report available in September 2006 was a 2005 "Geographic Dimensions of Well-Being in Kenya: Who and Where are the Poor? A constituency level profile."

Set up in 1979, The Food and Nutrition Planning Unit (FNPU) in the Ministry of Planning started in 1979, to promote and sustain food security and nutrition, including through surveillance of nutritional status, based substantially on the CBS surveys.

The FNPU is comprised of a national inter-ministerial committee, chaired by the Ministry of Planning, and a Food and Nutrition Taskforce, chaired and coordinated by the Food and Nutrition Unit. Both groups meet on a monthly basis. The Taskforce, comprised of stakeholders in the food and nutrition sector, is responsible for identifying and addressing upcoming issues. The Taskforce is reliant on secondary information produced by other organizations for the bulk of their decisions, but they do have the ability to conduct surveys if they deem it necessary. Questionnaires for occasional surveys are created by the taskforce. Reports summarizing survey results are available online.

³ See DHS 2003, MICS 2004

AREA LEVEL ('SMALL SCALE') SURVEYS

In the year 2000, in response to emergency needs, UNICEF was requested by the GOK to take up the lead role of coordinating health and nutrition related interventions for children in both non-emergency and emergency situations.

Emergency nutrition programs include situation analysis and early warning for vulnerable populations. Non-emergency nutrition programs include micronutrient supplementation, integrated early childhood development, and infant and child feeding projects.

Monthly health and nutrition meetings bring all of the stakeholders together. Work includes promoting and coordinating area-level surveys to assess emergency needs and adequacy of response. Independent NGO's are regularly sub-contracted to conduct these area-level (or 'small-scale') nutritional surveys under the umbrella of UNICEF, using a standardized sampling methodology and measurements (e.g. wasting prevalences as 'GAM').

The questionnaires for nutrition surveillance are developed by the implementing NGO based on the nutrition guidelines developed by the UNICEF partnership. The sampling methodology is a standard 30x30 cluster method, and all surveys include standard anthropometric measurements of age, weight, height, oedema and MUAC.

Data is analyzed by the implementing NGO, but is accessible by UNICEF staff for secondary analysis. Individual organizations are responsible for the publication and dissemination of results. Reports are published and distributed to UNICEF country offices, GOK, and the MOH, and are available for free on the respective organizations websites.

An example of compiled results from these area-level surveys is given in Annex 1. (Examples of individual survey reports are given in other papers.) In Kenya in the period 2000-2006 more than 160 such surveys were done (measuring GAM; 60 of these made child mortality estimates). The trends estimated from results of these surveys are given in the 'Niphorn1' report, Fig 3.2 (Chotard et al, 2006).

TIMELY WARNING SYSTEMS

There is a significant amount of overlap of input data for assessing food security risks between different organizations. The major systems/organizations studied here, and described below, are the Kenya Food Security Coordination System (KFSCS), the Arid Lands Resource Management Program (ALRMP), USAID's Famine and Early Warning Systems Network (FEWSNET), World Food Programs Vulnerability Assessment Mapping program (VAM), and the Food Insecurity and Vulnerability Information Mapping System (FIVIMS).

Kenya Food Security Coordination System (KFSCS)

In response to Kenya's continuing problems with food security and high levels of malnutrition, several organizations have been created to address issues of timely warning. Created through a partnership with WFP and the GOK The Kenya Food Security

Coordination System (KFSCS) aims to coordinate nutrition information and interventions in the field of emergency nutrition. The system includes early warning and comprehensive food security update and analysis components. The organization is structurally complicated, with multiple groups and meetings, all designed to include all organizations in the nutrition field. The list of internal groups includes:

- The Kenya Food Security Steering Group (KFSSG); for technical, policy, or administrative capability in the area of food security and drought management.
- Geographical Review Teams (GRT); responsible for compiling and interpreting all relevant nutrition data, putting together a situation report based on a consensus reached between all administrative-livelihood zones, and presenting that report to the KFSCS representative. GRT's are also responsible for reporting on the major interventions, reviewing proposals for funding for activities and providing recommendations for action and/or interventions still needed in their zone.
- Sectoral Working Groups (SWGs); one group each for food aid estimates, health and nutrition, water and sanitation, agriculture and livestock, and education.

The KFSCS organization functions as a coordinating body for developing standards and producing regional situation analyses. For example, a workshop was held on the 15th and 16th of June, 2006 to discuss the development of a regional nutrition situation analysis, and also to discuss the improvement of the “Integrated Food Security and Humanitarian Phase Classification” (IPC), tool created to enable comparability of analysis of food security and humanitarian situations using evidence based guidelines for analysis. A report of the meeting findings is available at

http://www.who.int/hac/crises/international/hoafrika/sitreps/Horn_of_Africa_Report_FoodSecurity_June2006.pdf

Arid Lands Resource Management Program (ALRMP)

The ALRMP was initiated with funding from the Netherlands in 1988 and is now funded by World Bank, and the GOK. ALRMP's structure is primarily a vertical one with its head offices located within the Office of the President, indicating a high level of priority in Kenyan government (see annex 4). The main purpose of the project is to act as an early warning system, alerting planners to the onset of drought, and to consistently measure the levels of stress in the local population during times of drought in order to inform GOK relief planning.

The project targets the arid and semi-arid lands region of Kenya – including much of North and North East Kenya, as well as the semi-arid band in the South of the country; this amounts to around 80% of the land area, but a much smaller fraction of the population – many of them pastoralist – but certainly those most at risk to drought (and displacement).

Purposive sampling is used in the selection of survey divisions, within districts that are pastoral, free from urban influence, and have a limited number of destitutes. In each selected division, a representative community/village is selected. Simple random sampling of 30 households is then done and their situation is reviewed every month to track changes. The same houses are visited each month in an attempt to create a long-term trend analysis (McKinney 2004). The survey uses three questionnaires.

- Household Survey: administered monthly, containing sections on pastoral food security indicators and nutrition information based on MUAC. All children in the household between the ages of 1 and 5 are assessed.
- Community Observation Form: based on his/her observations, the data monitor collects community information monthly.
- Quarterly Community Survey: This three-part survey presents its findings for the previous three months to a group of men and women in the community. Men and women from the ten selected households are then split into gender-based groups and participate in a rapid rural assessment (RRA) using techniques such as ranking, proportional piling, seasonal calendar charting, and mapping. Study households are reviewed for one year before being changed.

Data is collected and analyzed first by local staff in village settings, and then by a data analyst in the head office. Results are disseminated through monthly reports available at the website <http://www.aridland.go.ke/bulletins.asp>. An example (Wajir Nov 2006) is included here in Annex 5. Additionally, ALRMP works in conjunction with FIVIMS, VAM, FEWSNET, WFP, and UNICEF. Data is readily available to all partners.

Famine and Early Warning System network (FEWSNET)

FEWSNET, a USAID funded early warning and monitoring system, operates in Kenya monitoring and reporting on food security, and contingency, intervention and mitigation planning in collaboration with GoK, UNICEF, and WFP. Assessment is done through key indicators, collected as described elsewhere here, including (as available): agro-climatic conditions and ground data (rainfall, vegetation, start off season, water requirements and satisfaction index); ground station data generated by satellite, and cereal crop performance; crop data from the MOA up to the sub-national level; prices of 20 key commodities including maize and beans in 25 key markets; the impact of very high or low prices; milk production; stock levels; terms of trade; and child malnutrition data. Data is gathered from the MOA, ALRMP, MIB, ILRI, WFP, UNICEF, satellite data, field trips on a monthly basis, both from national and district offices. Which data is collected depends on the prevailing food security situation, and what information needs to be brought to the attention of decision makers.

FEWSNET's monthly food security bulletins are produced in collaboration with VAM and the Government of Kenya, the ALRMP, and UNICEF. Monthly food security bulletins are available on the web and disseminated freely to all interested parties. Examples of reports can be found at <http://www.fews.net/centers/?f=ke>. The December 2006 report for Kenya can be seen in Annex 6. In addition an emergency bulletin from January 2006, showing reported high child malnutrition prevalences at that time can be seen in Annex 7.

Vulnerability Assessment Mapping/World Food Program (VAM/WFP)

Developed by the United Nations World Food Program Kenya in 1998 the VAM program is designed to enhance effectiveness of national disaster preparedness, mapping, basic data resources and effective partnerships, and to provide high quality support to WFP programs and units using a set of specific skills, concepts and methods practiced by WFP regional program advisors to assist in informing WFP interventions. VAM provides analysis for WFP planning and program decisions, and contributes to FIVIMS.

VAM utilizes both secondary data from GOK, other UN agencies such as UNICEF and FAO as well as data collected by INGO's. Primary food security information collected through monitoring and satellite imaging is processed to develop a variety of vulnerability maps based on rainfall, climate trends, and food productivity. Nutritional information is mainly obtained from UNICEF/NGO nutrition area level surveys. This data is compiled to produce monthly bulletins on food security and vulnerability jointly with FEWSNET, ALRMP, MOA and UNICEF. Reports are used to inform program units and logistics in all areas of targeting, vulnerability analysis and data management, to increase capacity for disaster management, and to inform the GOK and NGO's on disaster preparedness and early warning. Reports are generated on an as-needed basis and distributed among shareholders. An example of a VAM map produced for Kenya can be seen in Annex 8. It is interesting to note, that VAM maps primarily aim to provide background and context, as well as results of special studies, rather than additional timely reports. However, maps are adapted by FEWSNET, ALRMP, and etc to provide location specific timely warning reports.

Food Insecurity and Vulnerability Information Mapping System (FIVIMS)

FAO and the GOK initiated FIVIMS in Kenya in 2001 to assemble, analyze, and disseminate data on food insecurity and vulnerability, to raise awareness about food security issues, improve the quality of food security related data and analysis, facilitate integration of complimentary information, promote better understanding of users' needs and better use of information, and to improve access to information through networking and sharing. FIVIMS is made up of an Inter Agency Working Group (IAWG) of 31 different members comprised mainly of AID agencies interested in food security, donors and the GOK. FIVIMS is implemented through a network of information systems that gather and analyze data relevant to the measurement and monitoring of food insecurity and vulnerability. Data collected is dependant on the intended intervention.

Information is meant to inform policy makers and the development and research community. Publications include a quarterly newsletter, monitoring reports and situation assessments whose frequency depends on the level of need, and policy and program evaluations and feasibility studies. Information and reports are generated and distributed to the following groups of people: Policy makers and their advisors in Government, Government officials and technical staff at the national and sub-national levels, local government authorities, civil society, the donor community, researchers, and training institutions. FIVIMS, like VAM does not produce regular reports in Kenya, but provides financial and technical support and context for others' reports.

SUMMARY

Major Points for Discussion

Observed areas for improvement in Kenya's NIS

The following points were compiled based on discussions with stakeholders, and input from previous research.

- Lack of a central repository for country-wide information
- Poor complementarities and comparability between systems

- Methodological weakness in individual systems
- Information gaps in terms of data type and geographical area
- Over-emphasis on emergency prone areas
- Limited understanding of potential value and role of different types of NI and consequently poor development of frameworks for combining nutrition information with other data types for decision-making, e.g. food security, poverty indicators, etc.
- An absence of evaluation or monitoring data on how data has been used, whether systems are achieving objectives, and the cost of each system
- Limited use of community level perspectives in nutrition information monitoring
 - A pragmatic approach to institutional development which supports overall co-ordination of nutrition activities and archiving of data is essential.
 - There is a need for an explicit policy on nutrition information and strategies for improving existing systems.
 - Identification and funding for a body to coordinate activities relating to NI. This may require a set of phased activities undertaken by FNPU and ICCFN resulting in increasing stakeholder support for such a body.
 - Identification of a central repository for processing, archiving, and disseminating NI effectively
 - Identification of a UN partner to take joint responsibility for NI in Kenya
 - NIS stakeholders to design monitoring and evaluation mechanisms to assess whether current NIS are meeting their set objectives
 - NIS stakeholders to undergo a cost-benefit analysis of current systems
 - Look at additional potential sources of NI such as stunting data on school age children and other potentially marginalized groups such as the elderly, men.
 - Further research to guide NIS improvements such as an analysis of ALRMP trend data and seasonal patterns of malnutrition as indicated by CBS/partner national surveys.

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