

**National Nutrition Surveillance Systems in Uganda**

*A Review and Recommendation Report  
Supported by UNICEF ESAR*

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

## a) Nationally Representative Surveys;

### *Demographic and Health Survey (DHS)*

DHS was initiated in 1986 by USAID to provide data and analysis on the population, health and nutrition of women and children in developing countries. Information is collected approximately every five years, although supplementary surveys are done in between. Information collected includes data on maternal and child health, HIV/AIDS, assessment of service provision, gender related data, and household information. DHS uses several tools to collect many different kinds of information including, qualitative research, GIS, and biomarkers. Reports are distributed widely through ministries and the Internet, and are major tools in policy and decision-making worldwide.

DHS has conducted surveys in Uganda in 1988, 1995/96, 2000/01, 2004, and are currently completing a survey for 2006, which will include information on anemia, anthropometry, iodine, micronutrients, and vitamin A. Fieldwork takes approximately six months, and reports are released internationally 12-15 months after the completion of fieldwork. Note that none of the surveys done in Uganda utilized the same fieldwork schedule. This could pose problems for comparability of the survey data, particularly in terms of nutrition data, because anthropometric measurements are taken at different times in the year, and during different seasons. This means that confounding factors will alter the results of anthropometric outcome from one survey to the next in differing ways depending on the season, making it impossible to know how much of the differences between surveys are due to interventions, disease, or hunger periods, and how much are simply population trends.

**Table 1: DHS Surveys in Uganda**

<b>Year</b>	<b>Type of Survey</b>	<b>Start of Fieldwork</b>	<b>End of Fieldwork</b>
<b>2007</b>	<b>Aids Information Survey</b>	<b>April</b>	<b>?</b>
<b>2006</b>	<b>Standard DHS</b>	<b>April</b>	<b>October</b>
<b>2004</b>	<b>Aids Information Survey</b>	<b>August</b>	<b>January</b>
<b>2000/01</b>	<b>Standard DHS</b>	<b>September</b>	<b>February</b>
<b>1995/96</b>	<b>Standard DHS</b>	<b>October</b>	<b>January</b>
<b>1995</b>	<b>Standard DHS</b>	<b>March</b>	<b>August</b>
<b>1988</b>	<b>Standard DHS</b>	<b>September</b>	<b>February</b>

## **b) Data From Clinics and Programs:**

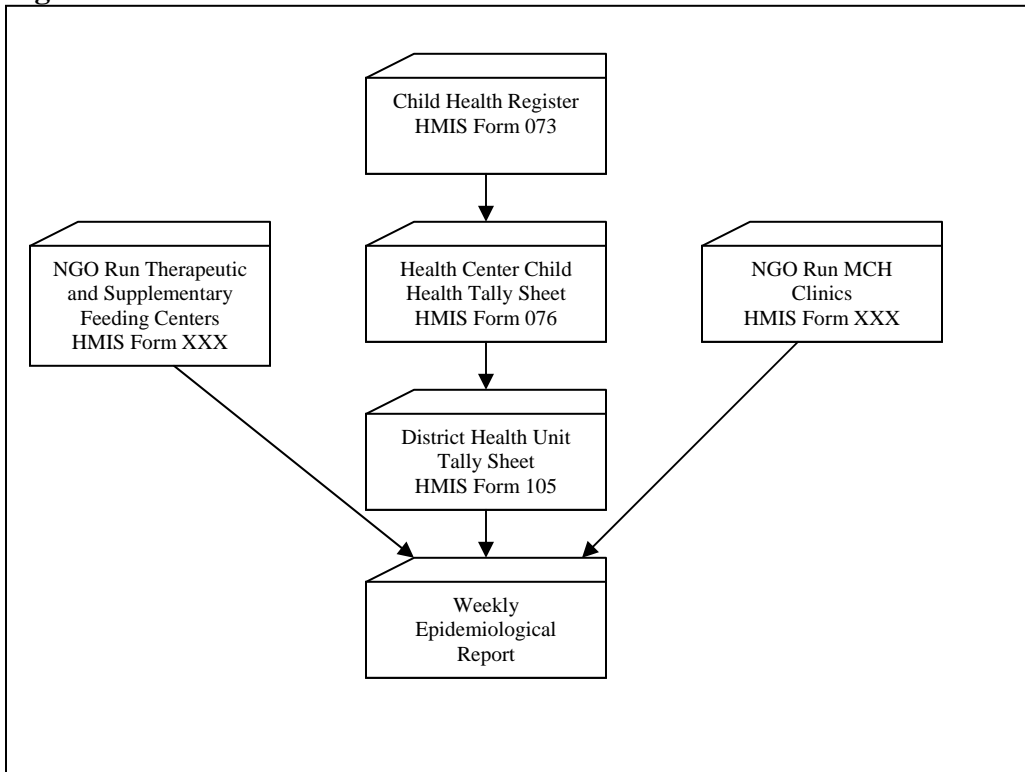
### *Health Information Management Systems (HMIS)*

In 1992, based on a needs assessment reviewing the countries health information, the Health Information Management System (HMIS) was developed.

Uganda's HMIS system starts at the community level in multiple health units in each district. Each selected site collects several different variables to supply information monitoring the operation of a health center. HMIS Form 073 collects individual child data including sex, weight, age, date of birth, immunization data, date and weight at measles vaccination, vitamin A supplementation, and deworming data. This data is tallied once a month and compiled onto HMIS Form 076. (Annex 3) Form 076 collects averages of the total number of child immunizations, weight for age at measles vaccination, Vitamin A supplementation, and de-worming gathered for all children attending the health facility. Form 076 is reported to the sub-district level, where it is compiled by the district health officer onto HMIS Form 105, where data from all health centers and averages for the district are tallied and recorded. (Annex 4) At the district level, systems of data compilation vary according to access to technology. Districts that have a computer and resources to maintain it are provided with an easy spreadsheet based system for compiling monthly and annual reports. Districts without a computer tally up the data by hand on a general reporting form. Tallied data is sent on to the Ministry of Health headquarters in Kampala. Reports from the districts may be delivered to the headquarters either by hand, fax, or email. District data is entered or merged into the databank and analyzed by a data analyst using Epi Info. Analysis consists of totaling numbers and averaging percentages by district. No multi-level or trend analysis is done. Weekly, monthly and annual reports detailing morbidity prevalence and healthcare center utilization are distributed to the Ministry of Health, the Ministry of Agriculture, and the Nutrition Working group, to be used for decision making in the health sector, both at the national and district level. (TRY TO FIND EXAMPLES) Unfortunately examples of these reports could not be obtained.

In addition to local health facilities, HMIS collects variables from Therapeutic Feeding Centers, Supplementary Feeding Centers, and Maternal and Child Health Clinics. Data collected is similar to the health centers and includes epidemiology, number of people treated, and mortality. Examples of data collected for HMIS from TFC's, SFC's, Community Based Clinics, and Surveillance systems managed by Action Against Hunger can be seen in Appendix 5. TFC and SFC reports are supposed to be submitted to the HMIS system on a monthly basis, however the current system is not designed to effectively analyze or report on this sort of data, and so it is not utilized beyond the district level offices. The lack of data utilization dampens motivation for timely reporting resulting in variable reporting levels from TFC's and SFC's.

**Figure 1: HMIS Data Flow**



Through the HMIS’ national health databank, health information is disseminated to stakeholders in the health sector. Products include reports on epidemiological surveys, periodical surveys and special studies; community based information, and reports from disease registers and the population and housing census. In addition a weekly epidemiological report is published once a week in the local paper publishing information from all reporting districts. (Appendix 6)

The HMIS system has the capacity to expand its reporting skills to include many additional variables relating to health and nutrition surveillance. With the weekly epidemiology report, it has a timely reporting tool which allows people at all levels to be kept aware of health situations in the whole country. Reporting levels are impressively high (75%-95% each week). A site visit to an HMIS clinic revealed up to date record logs, and a new computer recently installed to update the collection methods of that district.

The current system has many weaknesses in terms of its usefulness as a nutrition information system. In terms of growth monitoring, child weight and age are collected at the village level, along with weight at measles vaccination. Additionally, at the district level, a variable is collected called “number of children below the bottom line” which collects the prevalence of underweight for the health center. Unfortunately, this variable is also dropped when reporting at the district level. Only the weight at measles

vaccination variable is reported beyond the health center level, and even that variable is dropped for reports.

According to the Nutrition Officer at the MOH, the nutrition data currently collected through HMIS is “useless and non-representative”, because it is cumbersome, not well analyzed, and seems irrelevant to the general population. For this reason, it is only reported at the district levels, and is not published in the weekly epidemiological report, or in national reports. This reporting system can easily be modified to better capture true trends in underweight in populations. The simple addition of a column on HMIS Form 105, which reports total number of children weighed, and total number of children who are underweight, would allow for reporting and analysis of underweight prevalence at a district and national level. Analysts could then be trained to create trend data to provide a context for health and nutrition indicators in reports.

**Table 2: Suggested Modification to HMIS Form 105 (District Level Report)**

<b>Category</b>	<b>0 – 4 yrs</b>	<b>5 – 14 yrs</b>
# Of Children who received 1 Dose of Vit. A Supplements		
# Of Children who received 2 Doses of Vit. A Supplements		
# Of Children who received 1 Dose of Deworming Meds		
# Of Children who received 2 Doses of Deworming Meds		
# Of children below the bottom line (underweight)		
# Of children weighed		
# Of children treated with Homapak		
# Of Children Under 5 who slept under a mosquito net		

At the very top level, limitations to the system include the lack of computers in districts, and lack of trained staff to input and analyze data. As is expected, districts in more remote regions have a poor reporting record, weak coverage, and more challenges with the system due to lack of both infrastructure and MOH support. A practical and effective nutrition information system will also need to incorporate additional methods of data collection such as implementing a sentinel site system, and creating more efficient linkages with existing reporting systems through individual NGO’s, TFC’s and SFC’s in harder to reach areas and areas affected by conflict to be effective in Uganda. This will be detailed more in the Gaps and options sections of the paper.

*Community Based Programs*

UPHOLD Uganda: Uphold is a USAID funded grassroots program for growth monitoring. The system utilizes village health workers previously trained through the Community Owned Resource Person (CORP) program (originally funded by Basics II). Instruction includes principles and practices of growth monitoring, counseling for exclusive breastfeeding, complementary feeding, and for mothers of children who are failing to thrive, identification of vitamin deficiencies and severe illness, referral to local health centers, and treatment of all suspected cases of Malaria in

children under five with “Homapak” a combination of Chloroquine and Fansadar.

Through CORP, villages nominate an appropriate local person to be sent for health training who will be responsible to return to the village to provide basic healthcare for its population. Nominated members must speak the local language and be literate. Selected individuals then attend a one-week workshop at district headquarters where they are given the tools and training necessary to perform their duties in the village. All Village Health Team Workers (VHT's) are volunteers who operate on small incentives such as t-shirts, bags, and additional training.

VHT's perform a baseline survey of all children under two years of age in their village. Indicators collected include weight, and age. Every month VHT's have a weighing day where all mothers of children under two years attend. Children are again weighed and charted to check growth progress on the village level child register. (Appendix 7) If the child falls under the line of appropriate growth, the mother receives counseling. If the child is severely malnourished, it is referred to the local health center for treatment. Any children who come to the weighing day with an illness are also referred to the local health center. Any children who don't come to the weighing day are followed up through home visits on the following day. Close collaboration is maintained with traditional birth attendants and with the referral health center to update records of all children born in the district.

Once data is compiled, results are transferred to the parish and tallied onto an additional form (Obtain example) which reports the total number of children weighed, total number of children who are underweight, total number of children in the village, etc. All parish information is compiled by a parish supervisor and transferred to district offices. Village level data is also charted in a rudimentary bar graph and displayed on the wall of the health center for attendees of the health center to see. (Appendix 8) At the district level a district manager compiles all the district data and passes it to the Ministry of Health.

Detailed charts with pictures and appropriate triage questions are given to all VHT's to help them to counsel mothers of sick or under-nourished children. (Appendix 9) In each village an average of four VHT's are trained. Two receive additional training as drug distributors. Refresher programs for all VHT's are held quarterly to review common mistakes identified during support supervision, to improve the quality of counseling, and to enhance technical training.

The Uphold program is working effectively in multiple villages and sub-villages in Luwero, Bugiri, Mayuge, Kiruhura, and Ibanda districts, a

population of approximately 1.3 million (Uganda Population and Housing Census, 2003). While every district in the country has instituted the HMIS system, those districts where UPHOLD is not present do not have as impressive a history of reporting. Regular quality training programs, a high level of support from district and national level staff

The framework of the Uphold system is characterized by a high level of labor intensity, demanding ongoing support through on-site supervision and the need for strong leadership at a district level. The Uphold representative interviewed stated that one of the organizations biggest challenges was maintaining quality of counseling and levels of motivation of field staff in five separate districts. Additionally, timely receipt of data is heavily dependant on the strength of district level staff and facilitation of contact between parish, district, and national staff. The intensive requirements for labor and resources mean that sustainability without outside coordination and funding is questionable. In terms of supplementing an NIS, Upholds main focus is on health and counseling of mothers whose children show growth faltering, so statistical reporting and analysis is currently a low priority. However, the organization has a functioning infrastructure for data reporting which could easily be modified to support a nutrition information system in addition to the activities it currently supports.

#### *Combining HMIS and NGO's*

Reporting systems are built into the structure of each Maternal and Child Health Center (MCH), Therapeutic Feeding Center (TFC) and Supplementary Feeding Center (SFC). All centers have operational screening and reporting systems which collect standard anthropometric data including age (determined by MCH cards and calendar of events method), weight, height lying or standing according to WHO recommendations, MUAC, Odema, Mortality, and GAM. Monthly nutrition reports are generated and distributed through the HMIS system, and through the nutrition-working group. For an example see annex 10. Each individual organization maintains a database of all beneficiaries seen at any center, usually kept at their headquarters where it is analyzed. Locally, program managers using Epi-Info and Epi-Nut analyze data. This reporting system is useful for monitoring trends of worsening nutrition in vulnerable areas, but as the HMIS system is ineffective in it's gathering and reporting of anthropometric data, no system exists which can monitor the entire country.

*HIV Sentinel Surveys:* In 1986, Uganda established a National AIDS Control Program (ACP), which launched an aggressive campaign, which included grass roots offensive, and a sentinel site surveillance program. Surveillance was initiated in 1987 with four sites, growing to 15 sites by the year 2000. The ACP morphed into the STD/AIDS Control program in

1994 and has since trained thousands of community based AIDS counselors, health educators, peer educators, and other types of specialists. Today the sentinel site system has sites, which cover all 45 districts, although exact numbers of how many sites exist could not be accessed.

Sentinel surveillance sites were chosen taking into consideration regional coverage, the type of the population (urban and rural) and the number of ANC clients at each site. Sentinel sites cover all 45 regions with equal representation from both rural and urban populations. The last HIV sentinel survey was conducted in June of 2003. Survey results are released to the public about 6 months after survey completion via brochures, the epidemiology report published in the government-sponsored newspaper, and on the Internet. (Hogle, et al.)

AIDS case reporting is affected by accuracy and completeness of reporting by the various health units. Because reporting levels fluctuate, the number of AIDS cases in a particular district or health facility does not necessarily reflect the magnitude of the AIDS situation there. It can, however indicate trends over time that decision makers at central and peripheral levels need for planning. HIV sentinel surveillance data served as an advocacy tool and aided in monitoring HIV infection trends in the country. (MORE RESEARCH BEING DONE).

### **c) Small Scale Nutrition Surveys**

International Medical Corps, Action Against Hunger, Oxfam, MSF, World Food Program, and Save The Children are all active in emergency food programming in Uganda. All programs have a component of monitoring and evaluation through the use of both ad-hoc and regularly planned cross-sectional surveys. A working group on emergency nutrition developed through UNICEF and the MOH, brings together all stakeholders in nutrition surveillance in Uganda including, but not limited to MSF, WFP, ACF, Concern, etc.

Currently survey data is collected using the standard EPI 30x30 survey methods. Surveys are planned according to the schedules and funding constraints of each organization. Despite regular meetings of the working group, there is currently no coordination for frequency and timing of surveys. Despite the lack of a common seasonal calendar, surveys generally capture populations during the hunger or moderate periods. (Annex 11) Finally, there is often overlap in surveying of popular areas (i.e. Gulu district which has 120 different organizations currently in operation) while other vulnerable areas such as the West Nile tend to be neglected. (Annex 12) Indicators collected include GAM, and SAM by Z score and by percentage of the mean, and to a lesser degree, dependant on the organization gathering the data, MUAC, WHZ, HAZ, and BMI.

Epi Info, SPSS, Anthropac 2005, and nutrisurvey are all used to analyze data, which is then compiled into a relatively standardized report format and presented to the working group. The report is approved, or sent back for editing, and then released and distributed by UNICEF and the MOH to all stakeholders. Recommendations are made in the reports and steps forward are illustrated. Often an intervention is identified, using the data from the report to apply for funding to respond to the recommendations. It is the responsibility of all stakeholders to act on the results of the survey. An example of a survey done by ACF in Gulu District in March of 2006 can be found at the following link. (PLEASE UPLOAD ON INTERNUT AND ADD LINK) Selected outputs from the same survey can be found in Annex 13.

The nutrition-working group provides an opportunity to monitor trends and developments in those areas that are targeted as vulnerable to rapid shifts in nutrition status. They are able to fill gaps in the HMIS system by functioning in areas where normal systems won't or can't function. The working group meets once a month to review surveys that have been completed and to discuss plans for future surveys. Currently a set of guidelines for Small-scale nutrition surveys is being drafted in collaboration with the working group. The guidelines focus on standardizing the sampling methods, useful indicators, data collection methodologies, analysis and interpretation of results. Input is still needed on key issues including methods of sampling, and determining mortality.

#### **d) Early Warning and Food Security**

In Uganda the Early Warning System involves three organizations, the FAO's Global Information and Early Warning System (GIEWS) housed in the Ministry of Agriculture, USAID's Famine and Early Warning System Network (FEWSNET), and WFP's Vulnerability Assessment Mapping program (VAM). These use mostly the same input data, such as satellite imagery, rain table estimates, crop reports, pricing indicators, etc. The interpretations are made by the different systems for recommendations to their respective donors.

##### *Famine and Early Warning System network (FEWSNET)*

USAID funded FEWSNET is a collaborating partner of the Uganda Bureau of Statistics (UBOS). Operating with the intention of food security monitoring and reporting to inform contingency, intervention and mitigation planning, assessments include vulnerability analysis and food security monitoring. All appraisals are carried out in the context of the livelihoods approach.

FEWSNETS "Livelihood Approach - Access, not Availability."

The livelihood approach is a framework for interpretation of routinely collected non-anthropometric data such as rainfall, vegetation, crop production and market prices, which are used for the early prediction of food crises.

A baseline livelihood zone map and coinciding livelihood profiles of the entire country of Uganda is compared to potential hazards, which are monitored on an ongoing basis through a series of indicators. These include:

- 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 SACB up to the sub-national level
- Prices of 20 key commodities including maize and beans in 25 key markets
- Milk production
- Stock levels
- Terms of trade
- Child malnutrition data from UNICEF

Satellite data, and field trips on a monthly basis, both from national and district offices are also part of the surveillance. Which data is collected depends on the prevailing food security situation, and what information needs to be brought to the attention of decision makers.

Data is compiled and analyzed using one of the following programs as appropriate:

- Windisp for satellite imagery analysis
- Arcview and Atlas for mapping
- PriceMan for price analysis
- AGMAN for agricultural production data analysis
- Spaceman for satellite data analysis

Data analysis and compilation takes an average of 3 to 4 days, at which point it is reported through monthly food security bulletins available on the web and disseminated to interested parties. All partners of FSAU utilize this information to help determine appropriate reactions to food insecurity in vulnerable areas, as well as to assess improvements and make evaluation of intervention impacts. FEWSNET's outputs for Uganda include a national livelihood zone map and profiles, and scenario modeling.

In November of 2002, a FEWSNET report highlighted the severity of LRA insurgency in the north leading to the displacement of more than 47,000 people. Poor rainfall compounded the problem of food insecurity immediate emergency intervention was recommended leading to a mass scale up of humanitarian aid in the region. See annex 14 for a full report.

#### *Global Information and Early Warning System (GIEWS)*

Globally, the Food and Agriculture Organization of the United Nations operates an early warning system designed to provide policymakers and policy analysts with up to date information on all aspects of food supply and demand. The goal of the project, active in Uganda, is to enhance the capacity for forecasting and providing early warning of adverse conditions, including impending food emergencies in the agriculture sector so that timely interventions can be planned. This is done through effective monitoring of climate and weather patterns, and of plant and animal diseases and pests; GIEWS is a multi-faceted program that provides country profiles on water and food security, which present localized information on the state of water resources and food security. Data is collected using low resolution satellite imagery, meteorological data and derived products and information on software tools, methods and techniques used for environmental crop

monitoring, crop forecasting, early warning, desert locust control, and others. Reports are filed as needed, and readily available to all partners involved in food security through dissemination to government officials and relevant NGO's. An example report for Uganda can be found in annex 15. Reports are also published on the FAO GIEWS website.

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

In 1998, the United Nations World Food Program initiated the Vulnerability Assessment Mapping program in Uganda. VAM is a “set of specific skills, concepts and methods” practiced by the WFP regional program advisors to assist in informing WFP interventions. It is an analytical information tool for WFP, and a contributor to FIVIMS which focuses on developing sophisticated vulnerability mapping, basic data resources and effective partnerships, to provide high quality support to WFP programs and units.

The VAM unit utilizes both secondary data from other UN agencies such as UNICEF and NGO's, the HMIS and GIEWS, and the nutrition-working group. Primary food security information is collected through monitoring and satellite imaging. Nutritional information is mainly obtained from UNICEF/NGO nutrition surveys. Analysis is done by primary agencies and compiled by the VAM into a monthly report that is available on the web, and is distributed to WFP programs and field offices. Data is used to provide effective services to the program units and logistics in all areas of targeting, vulnerability analysis and data management, to increase capacity for disaster management, and to inform all interested partners and NGO's on disaster preparedness and early warning. Data is published in monthly bulletins in conjunction with the MOA, MOH, WFP and UNICEF. Reports are available on the web. and distributed to WFP programs and field offices, which are then used to provide services to the program units and logistics in all areas of targeting, vulnerability analysis and data management, to increase capacity for disaster management, and to inform the GOU and NGO's on disaster preparedness and early warning. (Senac 2006) An example of a report published by VAM in 2002 during an emergency can be seen in Annex 16. The document has limited recommendations at the time of emergency. WFP suggests ‘a clear need for assistance’ including ‘geographically targeted food transfers’, but with little detail. The reports do not go much further than describing the current situation.

**e) Data Analysis**

*The Uganda Bureau of Statistics (UBOS)*

The Uganda Bureau of Statistics act transformed, the Uganda Bureau of Statistics, originally under the Ministry of Finance, Planning, and Economic Development, into a semi-autonomous body in 1998. The aim of UBOS is to provide efficient, high quality, user-friendly statistics on the countries social, economic, and political developments. Functions include:

- Standardization of collection, analysis, and publication of statistics from various sectors, ensuring uniformity, quality, adequacy of coverage, and reliability of statistical data and information.

- Provision of guidance, training, and assistance to users and providers of statistical data.
- Promoting co-operation, co-ordination and rationalization among users and providers of statistics at national and local levels to avoid duplication of effort and to ensure optimal utilization of scarce resources.

The organization is divided into seven separate directorates addressing various facets of statistical data. The Directorate of Population and Social Statistics is responsible for population censuses, demographic statistics, vital registration, socio-economic household surveys, labor and other social statistics, and mapping for censuses and surveys, but collects no nutrition data. UBOS could be a useful central storehouse for nutrition data, and a valuable partner in coordination of national nutrition activities and publishing data.

#### *Dev-Info*

DevInfo is a tool provided by UN partners to organizations such as the Uganda Bureau of Statistics to give them a common platform for dissemination of statistics. DevInfo acts as a database system that allows the storage, organization and display of country data in a uniform format. This common platform facilitates data sharing between UN agencies and Government departments. It can be used to produce tables, maps, and graphs for use in reports, facilitating evidence based planning, monitoring, and evaluation. It is unclear whether the format is suitable for reading into a statistical analysis package like SPSS for further analysis.

UgandaInfo is a comprehensive database featuring records of 237 separate development indicators compiled from 1999 through 2006 making trend analysis possible. Indicators are grouped into six themes: Gender, HIV/AIDS, Governance, Food Security, Poverty and Natural Resources. Thus far it has been influential in its role in helping to report on situation analysis of children and women, and for monitoring trend analysis of impact by government projects such as PEAP.

The database is designed to integrate into the national priorities through its inclusion of the Poverty Eradication Action Plan (PEAP) which outlines Uganda's development framework, the Millennium Development Goals (MDG), the Education For All (EFA) program, and World Fit For Children (WFFC) directive.

Ugandainfo is maintained and operated by UBOS, in accordance with their mandate to disseminate reliable statistics. The database is updated once a year from data submitted by involved ministries and organizations including the Ministry of Health, Gender and Social Development, Finance and Education, the Uganda AIDS Commission, and the Directorate of Water Development. Data is then entered by one of three staff trained in data entry and analysis. Because data availability is reliant on timely reporting by overburdened staff, updates are often later than scheduled. High staff turnover means that data quality and organization may be variable. The annual updates mean that the database is appropriate for long-term planning, but not useful for current updates or timely warning.

The Constitution of the Republic of Uganda places a lot of emphasis on attaining food security and adequate nutrition for its citizens and the government is committed to fulfilling this goal so that all Ugandans can attain “good health, and social and economic well being”. Currently major gaps exist in Uganda’s Health Information Systems, preventing the achievement of these goals. These include:

### 3 NUTRITION INFORMATION GAPS AND PROPOSED DATA COLLECTION SYSTEMS

**Table 3: Objectives of Nutrition Data Sources**

Data source/system	Main purpose		
	Long term planning	Program monitoring	Timely warning of food/nutrition crises
DHS	Y	(Y)	No
HMIS current	(Y)	Y	(Y)
HMIS with selected site focus	(P)	(P)	P
C-based programs thru HMIS	(P)	P	P
EWS – prodn, climate etc	(Y)	No	Y
EWS – prices	No	No	Y

Y – yes, (Y) – sometimes, P – potential, (P) – maybe.

DHS data may need to be analyzed and interpreted further, in order to be used more efficiently for long-term planning decisions. This data could be very useful in support of HMIS, in assessing the relation of prevalence estimates from clinic data to population prevalence’s. HMIS as currently operating collects anthropometric data but this is not analyzed. If it were then its main use would probably be for program monitoring. However the suggestion here is to select a series of clinics for additional support (in quality of measurements, data tallying and flow, and analysis); the data would potentially be useful for timely warning, providing fail-safe information on malnutrition, both on developing crises and on whether programs were effective in containing these.

Community-based programs, such as UPHOLD, include child growth monitoring and the data captured from these can be passed up (presently through HMIS), similarly to that from clinics. These (CBPs) have not yet expanded to wide coverage (UPHOLD is in 5 districts), but if they do then support for capturing the data (in selected villages, at least to begin with) would provide an alternative sentinel site system. Probably support to these might be higher priority than for clinics, as they are more focused on child growth. The potential uses of these data are for both timely warning and program monitoring.

Data already collected for the early warning system(s) should be linked to malnutrition trends. Of the data usually available currently of particular use are consumer and food prices (often best as a ratio of food price: general (consumer) price indices (FPI/CPI)). These tend to correlate well with changes in malnutrition, even predicting these by a month or two.

## 4 OPTIONS FOR THE FUTURE

Based on recommendations made by the UNFP, in line with the Poverty Eradication Action Plan (PEAP), the Plan for Modernization of Agriculture (PMA) and the National Health Policy, and on suggestions from implementing agencies and previous research in Namibia, Malawi, and Ethiopia, here are some options designed to strengthen existing structures, fill gaps, and expand nutrition surveillance in Uganda to provide reliable and timely data which can be used for purposes of policy formulation, program monitoring and management and timely warning.

1. **Modification to existing HMIS Nutrition Data Collection System** to enhance program management, monitoring of nutrition levels, policy formulation, and to inform program planning, with the specific aim of transmitting growth data already collected.

Currently the Demographic and Health Survey (DHS) is conducted roughly every five years with special surveys done at irregular intervals. These surveys provide accurate estimates of anthropometric indices for children under five at a regional and national level. Additionally, monthly data on nutritional status (weight for age) among children weighed at village level health facilities is collected as a part of the HMIS. However, reporting tools are cumbersome and ineffective, leaving out all anthropometric data in published reports, and data quality is questionable. This makes trend analysis impossible at a district level. Reporting systems could be modified to capture more useable data at a village level through the adaptation of the existing HMIS forms. In addition, staff at all health centers and at the district and national levels should be well trained and provided with continuous support and follow up.

2. **Vulnerable Area Surveillance** for timely warning, program planning and monitoring of program outcomes. Currently in Uganda several districts in the northern and eastern regions are underrepresented by the HMIS system as a result of conflict and poor infrastructure. These areas could be better represented by a surveillance system similar to those used by FSAU in Somalia, Mozambique, Darfur in Sudan, and the Arid Lands program in Kenya. Sites would be selected based on representative ness of
  - Agro-pastoral zones and livelihood zones
  - Evidence of direct impact or crisis
  - External Data sources indicating deterioration
  - Presence of high risk groups
  - Security Issues
  - Site Size
  - Accessibility

The choice needs to be made on whether to create clinic-based sentinel sites, or perform rapid periodic screening in designated sites to obtain information. Sites

would only be operational as long as the area was designated “vulnerable”. All sentinel site data would be fed into the HMIS data system and analyzed and reported in the same way as other health center and district data.

3. **Data Collection from Community Based Programs, TFC’s and SFC’s**  
Existing Community Based programs such as Uphold collect growth data as a part of their growth-monitoring program. This data is not efficiently reported as far as the national level, but could be an extremely useful source of information from the village level. Likewise, Therapeutic and Supplementary Feeding Centers and Maternal and Child Health Clinics run by NGOs provide a rich source of data to monitor changes in nutrition situations. All of these sources of data can be easily fed into the HMIS system for analysis and reporting on a monthly basis.
4. **Small Scale Surveys** as point verification to early warning systems. In the event that a sentinel site, or a government or NGO-run health center shows signs of deteriorating nutrition status, an alert could be raised for members of the nutrition working group to conduct a small scale survey to verify the situation in that area using a larger and more representative sample, and following their guidelines. Bi annual surveys in vulnerable areas could act as systems for monitoring programming and nutrition status.
5. **National Surveys (UDHS)** for policy formulation and program design, management and monitoring.

The Uganda Bureau of Statistics might develop its capacity for nutrition and health surveillance, perhaps as an individual office dedicated to nutrition surveillance and acting as a coordinating body and a clearinghouse for data collection, distribution, and surveillance. The UBOS could house a technical working group supporting both general growth monitoring and nutrition/health statistics, and Emergency surveillance and response. Partners on planning and operations for the technical working group would include UNICEF, the MOH, GOAL, ACF, IMC, OXFAM, SCF, EWIS, NADDS, WFP/VAM, and all other organizations working in the field of nutrition in Uganda.

In this option, UBOS would develop mandates on data to be collected, based on WHO standards, and utilizing the guidelines previously created by the nutrition-working group. They would control development of regulations on collection procedures, and standardize reporting routines. They would be responsible for planning nutrition surveys, and organizing the working group to carry them out, avoiding repetition. They would collect, analyze, report and disseminate all growth monitoring data, store past data, and provide yearly trend analyses. Additionally, all reports and datasets done by members of the emergency nutrition-working group would be stored with UBOS-NHS.

Sentinel sites should be selected in a manner that will offer a representative picture of the countries population taking livelihoods and livelihood zones (both rural and urban) into account. Vulnerable areas and regions should be more heavily represented to better predict oncoming emergencies. The Sentinel Site system should be integrated with Growth Monitoring Programs and the existing HMIS system. Indicators and reporting

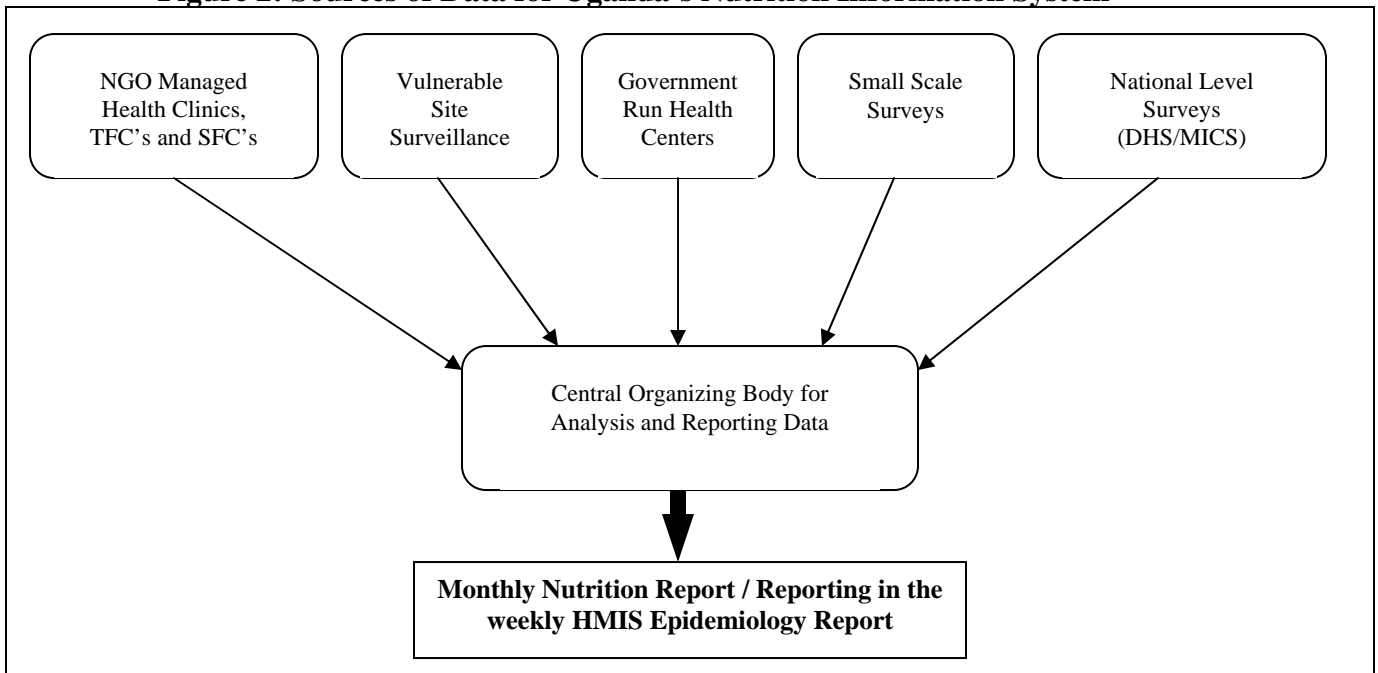
systems within the HMIS should be modified to more effectively capture data that can be easily analyzed and be capable of offering trend analysis in all districts.

In the development of a stronger NIS system which incorporates early warning data, long term policy planning data, and data suitable for program monitoring, strengthening the existing functioning sites for HMIS and Growth monitoring should be considered first, scaling up programming throughout the country over time. Policy needs to be strengthened at a National level to emphasize the priority of the program, and continual support must be maintained to ensure efficient functioning and long-term sustainability.

**Major points for recommendation:**

- Link to UBOS to create a clearinghouse for all nutrition data to be easily accessed and regularly analyzed for trend analysis, and to develop and release monthly reports.
- Schedule and designate bi-annual nutrition assessments in vulnerable districts in conjunction with ngo's.
- Increase number of trained and paid staff from ministry level all the way down to village level.
- Strengthen HMIS by incorporating anthropometric data in reporting categories, and improve training and follow up of clinics and staff throughout the country.
- Utilize UPHOLD growth monitoring structure, manuals and methods to expand growth monitoring, access to health care, and improved quality of care throughout the country.
- Identify sentinel sites in vulnerable districts that can be monitored for change in nutrition status.

**Figure 2: Sources of Data for Uganda's Nutrition Information System**



**Table 4: Possible Job Allocations for Future Enhanced HMIS in Uganda**

Data	Who
DHS/national surveys	UBOS (?) – but nutritional analysis may need other inputs, e.g. MOH-nutrition, or? University for secondary analysis
HMIS	MOH presently but need support for nutritional data flow and analysis.
HMIS with selected site focus	Would need additional support in selected clinics, districts, and centrally – MOH nutrition desk (currently two staff) would need strengthening.
C-based programs (CBPs), through HMIS	If CBPs expand, then selected villages would need support for capturing and flowing data; this may be thru HMIS, which would then need additional support as above.
Use of selective EWS data (e.g. food prices)	Linkage of current trends in (e.g.) food prices to malnutrition rates requires bringing these data together – e.g. linking agriculture to health? How to do this.

The capacity for developing an enhanced system involves support in clinics/programs for those doing the weighing, tallying, and passing data on, at district level for summarizing and interpretation, and then centrally for synthesis and analysis. Deciding on a focal point for this would be a key step. This might be in the MOH nutrition section, which presently has a staff of two people, or with UBOS. The role of FNCU presumably would initially be to consider strategies for developing nutritional surveillance – including those suggested here – and provide guidance on who does what.

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