

Household food security and nutrition: Nigeria

ABSTRACT

Household food insecurity – the lack of access at all times to a sufficient quantity and quality of safe and nutritious food for an active and healthy life – can cause under-nutrition and micronutrient deficiencies, which affect every age group throughout the developing world. Whatever the reasons for food insecurity – agro-ecological, socio-economic or multisectoral – food-based interventions hold the key to addressing and solving the problems in both the short and long term.

In Nigeria, a nutrition survey conducted by the Government of Nigeria and the United Nations Children's Fund (UNICEF) in 1993 revealed that Kano state in the northern savannah zone of the country was facing worsening food insecurity. It had the highest prevalence in the country of stunting or chronic under-nutrition among children under the age of five and alarming statistics for micronutrient deficiencies of iron, vitamin A and iodine in adults and children. This had led to a high incidence of malnutrition-related diseases, including marasmus, kwashiorkor and goitre, which were not only undermining health but hindering agricultural production in a region traditionally considered the bread basket of Nigeria.

A project supported by the Technical Cooperation Programme of the Food and Agriculture Organization of the United Nations (FAO) was launched in September 1996 to improve household food security (HFS) and community nutrition in Kano state through a comprehensive food-based action and training programme. By mid-1998, a four-year food-based action programme and training package for multisectoral extension workers had been developed. It promises to achieve sustained improvement in community nutrition by reducing household food insecurity and increasing per capita calorie intake by 35 percent.

A key to the success of the programme was a consultative planning process comprising three tiers of society, community, experts and policymakers, involved in appraisal, development and implementation. This approach strengthened inter-sector cooperation in identifying problems and finding solutions.

As an initial step, a community participatory rural appraisal (PRA), was carried out in three agro-ecological zones of Kano state: the dry and wet Sudan savannahs and the Northern Guinea savannah. This exercise improved under-

standing of the HFS and nutritional situation, identified inadequately exploited potentials and opportunities and recommended food-based interventions for implementation in the three zones and other areas with similar agro-ecological characteristics. A total of 1 718 households, averaging ten persons each, were covered, of which approximately 80 percent were found to be food-insecure. Factors leading to or exacerbating the situation included fragmentation of land resulting from population growth, inadequate access to fertilizers, improved seed varieties or pesticides and limited access to labour-saving farm and food processing implements.

The PRA results formed the basis of technical discussions in February 1997 at the National Workshop on the Development of a Food-Based Action Programme for Household Food Security and Nutrition Improvement. Sector-specific planning sessions were subsequently held with each implementing government sector. The draft action programme was discussed by policymakers from line and coordinating ministries at a one-day workshop. Their comments were taken into account in preparation of the final document, which reflected the extent of household food insecurity and malnutrition in Kano state. The government quickly approved the action programme.

The action programme addresses four key areas:

- creating awareness and disseminating information and educational materials on the magnitude and socio-economic consequences of household food insecurity and malnutrition and how these can be minimized using existing food resources;
- increasing food production through increased productivity and efficient utilization of produce;
- minimizing, if not eliminating, the health factors that undermine food-related nutritional gains;
- coordinating efforts and monitoring progress towards improvement of food security and nutrition in the state.

Parallel to development of the action programme, two training sessions were organized for trainers and extension workers. Participants from all sectors involved in HFS and nutrition improvement were trained in:

- basic and new concepts in nutrition;
- crop, livestock and dietary diversification;
- management of small ruminants;
- common forms of malnutrition in Kano state;
- diarrhoea prevention and treatment;
- participatory planning and implementation of HFS and nutrition interventions.

A training manual in English and Hausa was produced through a consultative process to facilitate the training of extension workers and the communities.

Implementation of the action programme began in January 1998 with the creation at state level of the Kano State Household Food Security and Nutrition Planning and Coordinating Body. At ward, village and local governmental levels, **HFS** and nutrition planning and coordination committees will be formed. Existing community associations, self-help groups or village development committees are a suitable entry point for community mobilization.

One of the lessons learned through this innovative experience was that deviations from planned project activities often have to be made to address community concerns. In the Kano project, it was recognized that lack of drinking water and access to agricultural inputs such as fertilizer and seeds had to be given immediate attention if any progress was to be made in establishing the consultative process.

The experience of using such a process to strengthen collaboration in food-based interventions serves as a useful model. Prior to the project, there was no reliable information on the scale of household food insecurity and malnutrition in the area. State activities in **HFS** and nutrition were limited and uncoordinated. Although identifying problems and finding solutions did take longer through the consultative process, it accelerated approval by policymakers.

INTRODUCTION

Household food insecurity, under-nutrition and micronutrient deficiencies are found throughout Nigeria, with important differences based on agro-ecology, access to government services, rural or urban location and socio-economic factors.

A nutrition survey conducted in 1993 by the Federal Government and UNICEF showed that the northern savannah zone, in which Kano state lies, had the highest prevalence in the country (51 percent) of stunting or chronic malnutrition among children under the age of five. The survey highlighted the magnitude of micronutrient deficiencies, in children estimated at 15 percent for iron, 16.5 percent for vitamin A and 39 percent for iodine. Micronutrient deficiencies were also observed among women.

In response to the worsening **HFS** and nutritional situation in Kano state, the Federal Government in consultation with the Kano state Government requested assistance from FAO to develop an action programme on **HFS** and nutrition improvement. A Technical Cooperation Programme was initiated in September 1996, with the objective of developing a comprehensive food-based action and training programme that would bring about sustainable improvement of nutrition in the state.

Kano state lies in northern Nigeria. The southern part of the state is in the Northern Guinea savannah, which has annual rainfall of between 600-1 200 mm.

The central and northern parts are in the Sudan savannah, where annual rainfall is 300-600 mm. Average rainfall for the state is 840 mm over a period of 90-110 days, depending on location, from the end of May to mid-September. Mean annual temperatures range from 30 to 35°C, with maximum temperatures at the peak of the dry season from March to May.

The surface area is estimated at 20 400 km². According to the 1991 census, the population is 5.64 million, with a 2.9 percent annual growth rate. Fifty percent of the population is female. Population density is 277 inhabitants per square kilometre, making the state one of the most densely populated northern states of Nigeria. Agriculture is the main economic activity, occupying over 75 percent of the population.

PRE-INNOVATION

Prior to the start of the project, there was no reliable information on levels and magnitude of household food insecurity and malnutrition in the area. State HFS and nutritional activities were being carried out in an uncoordinated manner and were limited in scope and coverage. The desired impact had never been attained.

In the absence of a comprehensive nutrition surveillance system and despite the limitations of hospital-based data, information from one of Kano's major referral hospitals was used to obtain a rough indication of malnutrition trends. Data from the growth monitoring and nutrition rehabilitation unit of the Murtala Mohammed Specialist Hospital showed about twice as many cases of marasmus compared to kwashiorkor. There was a 20 percent increase in kwashiorkor cases during the period 1995-96, while the number of marasmus cases remained the same. A rise in the number of marasmus cases has been reported at local government health clinics in recent years. An increase in the number of anaemia cases at the maternity ward of Murtala Mohammed Specialist Hospital was recorded, from 93 in 1992 to 864 in 1996. This deficiency is often associated with low birth weight and high maternal mortality.

The food insecurity situation in Kano state is characterized by a "hungry period" from April to August for the majority of the population. The duration of the period varies according to resources available to communities and households.

INTRODUCING INNOVATION

The process leading up to the action programme, launched in September 1996, started with a review of ongoing HFS and nutrition-related projects in the state,

⁵⁶ A wasting disease.

⁵⁷ A form of malnutrition caused by a protein deficiency of the diet.

followed by consultations with selected communities in different agro-ecological zones, using the PRA method. The results of these consultations formed the basis for a technical discussion at a national workshop, the National Workshop on the Development of a Food-Based Action Programme for Household Food Security and Nutrition Improvement, February 1997, which was attended by national and international experts. It generated recommendations on which the action programme is based.

Following the workshop, planning sessions were held with each implementing government sector, at which workshop recommendations were elaborated and, where necessary, modified to take into account the potentials and limitations of the sectors. The programme thus builds from current realities and harnesses potentials and opportunities that have so far been inadequately exploited.

The draft action programme was discussed by policymakers of line and coordinating ministries at a one-day workshop at the end of July 1997. Their comments were taken into account during preparation of the final document.

Parallel to development of the action programme, the project organized two training sessions for trainers and extension workers. Training materials were produced that served as reference for follow-up training programmes for extension workers in sectors dealing with HFS and nutrition improvement. Assessment of the training needs of extension workers from the agriculture, health, education and community development sectors was carried out in January 1997, during which potential trainees completed questionnaires on HFS and nutrition issues. On the basis of the information collected and the draft of the action programme, priority training areas were determined.

Participants for the training-of-trainers session were drawn from three areas:

- all state-run tertiary institutes in the agriculture, health and educational sectors;
- line ministries and agencies conducting in-service training sessions for extension workers;
- extension workers' supervisors.

Trained extension workers comprised grassroots level workers from all sectors involved in HFS and nutrition improvement. The majority came from areas covered during the PRA. Training topics included:

- basic and new concepts in nutrition;
- the **HFS** concept and how it was locally perceived;
- crop, livestock and dietary diversification;
- management of small ruminants;
- common forms of malnutrition in Kano state, including their detection and monitoring;

- diarrhoea prevention and treatment;
- community participatory planning and implementation of **HFS** and nutrition interventions.

Training sessions were conducted for extension workers and trainers.

The course was highly appreciated. Field work served as an eye-opener for a considerable number of trainers, who do not often have the chance to work in the field. Extension workers recommended translation of training materials into Hausa and periodic training sessions. English and Hausa training manuals were eventually produced and distributed to agencies in the agriculture, health, education, women and community development sectors for use as reference material in the follow-up training of extension workers and communities.

The implementation process

The objective of the project was to improve HFS and community nutrition in Kano state through a comprehensive food-based action programme. The implementation processes include:

- participatory rural appraisal of HFS and nutrition issues in the area;
- implementation of the comprehensive food-based action programme;
- additional activities undertaken to meet the needs of the appraised communities.

In December 1996, a participatory rural appraisal of the HFS and nutritional situation in Kano was carried out in three different agro-ecological zones of the state.

The objectives were to:

- gain better understanding of the HFS and nutritional situation, including links between different farming systems, the HFS situation and nutritional status;
- identify, in conjunction with the community, inadequately exploited potentials and opportunities;
- recommend food-based interventions for implementation in the appraised area and others with similar agro-ecological characteristics.

Local governments selected included Tudun Wada, situated in southern Kano state and in the Northern Guinea ecological zone, centrally located Warawa in the wet Sudan savannah zone and Tsanyawa in the extreme northern part of the state in the dry Sudan savannah.

The existence or lack of irrigation facilities and the accessibility of villages were among the factors taken into consideration when selecting the four wards per local government area for appraisal.

A total of 1718 households, averaging ten persons per household, were covered,

representing 10 percent of the population of the area. Households in the selected wards were numbered and different data were collected from these households.

Data collection methods included:

- mapping agro-ecological features and areas of economic activities;
- interviews involving discussions based on a flexible checklist;
- information gathering from key informants;
- individual and group interviews with a view to verifying the information collected.

Other methods included community ranking of household food insecurity and wealth ranking. The appraisal team lived in each of the villages for one week, observing and collecting information on:

- food production and production trends;
- farm labour supply and demand throughout the year;
- food processing, preservation and utilization;
- infant feeding and child care;
- mid-upper arm circumference (MUAC) measurements of children aged between 1-5 years.

Summary of appraisal results

Results showed that household food insecurity (HFI) in the appraised areas is widespread. Two **local HFI** terms commonly used, with local alternatives, were *matsala* and *tararrabi*.

Matsala refers to the food situation in a household where produce is inadequate and lasts only 3-5 months after harvest. Adjustments in the daily quantity and quality of meals start shortly after harvest, around January. From January onwards, two meals are generally consumed, reduced to one around May.

Tararrabi refers to the situation in households where produce lasts 8-9 months after harvest and the families concerned start adjusting the number and quality of meals around April/May.

Shortly after harvest, breakfast comprises leftover *tuwo* from the previous night, supplemented by porridge and bean cake. Lunch comprises dishes made from a cereal and cowpea mixture. Dinner, the main meal for most families, consists of *tuwo* with a local soup made from dried and ground okra, baobab leaves or rosselle. Fish or occasionally meat may be added. Milk is often consumed at lunch as a millet and sour milk drink (*fura da nono*). As food stocks start to dwindle, the quality of meals changes considerably and it is not unusual for families to consume meals of only green leafy vegetables in the rainy season.

Community members ranked households according to the different HFI

categories. Of the 1 718 households appraised, approximately 80 percent were food-insecure. Of these, 46 percent were temporarily food-insecure households (*tararrabi*), while 34 percent suffered from chronic food insecurity (*matsala*). Two of the three irrigated areas appraised, Daba and Tabanni Rinji, considered 70 percent and 40 percent of the households respectively to be food secure. In these areas, more elaborate feasts, the acquisition of better-quality *boobos*, motorcycles and sometimes cars, and marrying additional wives are generally perceived as signs of improvement in the quality of life.

According to observations of community members, the food insecurity problem has been worsening in virtually all of the wards appraised during the past five years. Inadequate access to fertilizers, improved seed varieties or pesticides and limited access to labour-saving farm and food processing implements are viewed as some of the major constraints to HFS improvement. Fragmentation of agricultural land, the result of increases in population and land acquisition through inheritance, was indicated as one of the underlying causes of food insecurity.

Elderly men in non-irrigated areas often complement food production with income-generating activities such as brick-making and cutting firewood during the *dry* season. Young men seek seasonal employment in nearby urban or irrigated areas, while young women intensify income-generating activities by hiring out their labour to thresh and process food in food-secure households and prepare food for sale, using ingredients from the forest as far as possible. Income accrued by women during food-insecure periods, including income from livestock sales, goes towards supplementing family food stocks. Where several generations co-exist in a household, the older women often assist the men to purchase additional cereals, while younger women enhance family food stocks by purchasing soup ingredients. Income generated by both men and women is inadequate to maintain meal frequency and quality.

A combination of factors is responsible for worsening malnutrition levels in children. Ever-increasing HI3 contributes to the observed low frequency of feeding infants and children. The increasing incidence of diarrhoea, high prevalence of other communicable and parasitic diseases and lack of awareness about the causes and treatment of the diseases and nutritional disorders all contribute to the high levels of malnutrition.

Implementation of the food-based action programme

The food-based action programme takes into account the potentials and limitations of the sectors, builds on current realities and harnesses inadequately exploited opportunities.

The programme addresses issues classifiable into four categories:

- creating awareness and disseminating information and educational materials on the magnitude and socio-economic consequence of HFI and malnutrition, showing how they can be minimized with existing food resources;
- increasing food levels through increased productivity and efficient utilization of produce;
- minimizing, if not eliminating, the health factors that undermine food-related nutritional gains;
- coordinating efforts and monitoring progress towards enhanced HFS and nutrition in the state.

The objectives of the programme components are to:

- create awareness of the problem and magnitude of HFI and nutrition deficiencies in Kano state, from policy-making to household level;
- reduce the rate of household food insecurity by 35 percent by the year 2001;
- improve per capita calorie intake by 35 percent of the current level by 2001;
- reduce chronic and acute malnutrition in children under the age of five by 30 percent by 2001;
- reduce iron deficiency in women and children of Kano state by one-third of the current level by 2001;
- reduce vitamin A deficiency from 1993 levels of 17 percent to less than 5 percent by 2001;
- eliminate iodine deficiency by 2001.

These goals **took** into account targets set in ongoing government and donor-supported projects.

Key issues

The action programme envisages formation of an HFS and nutrition planning, coordination and monitoring body as crucial to effective implementation of the programme.

Of the 27 proposed programme components, three are old and require virtually no additional inputs, 18 are ongoing and require additional inputs and six are new, with one requiring minimal inputs. The remaining five require inputs. Some activities are already being supported by agencies such as FAO, UNICEF, the United Nations Development Programme (UNDP) and the World Bank. In many cases, the government needs only to renegotiate donor commitment to some of these components, as individual sectors or, more importantly, through the newly created state HFS and Nutrition Coordination Committee.

The programme has initiated consultative planning with communities and strengthened intersector cooperation aimed at enhancing HFS and nutrition improvement.

Additional activities undertaken under the project

One of the lessons learned from the experience is that where consultative participatory processes are used to identify problems and find solutions, certain deviations from planned activities must be carried out in order to take on board community concerns.

Following the PRA, two issues emerged: potable water supply and access to agricultural inputs, particularly fertilizer and seeds. It was very clear that these community concerns had to be given immediate attention if progress was to be made in establishing the consultative process. Efforts were accordingly made through a government agency responsible for providing water in rural areas to secure a borehole for one of the villages. A small task force was set up under the leadership of the project coordinator to make it easier for some of the appraised villages to obtain fertilizer and soybean seeds.

In May 1997, three tonnes of fertilizer and 150 kg of improved soybean seed were made available to farmers in eight of the appraised villages, selected because of their potential for establishing a self-sustaining village seed bank. The level of agricultural activities and the reliability of rainfall in a particular area were taken into account. The distribution pattern was thus biased towards areas of high potential.

Three of the eight villages were located in the south, three in the centre and two in the north of the state. The villages in the south received 30 kg of seed per village, those in the centre 15 kg and those in the north 10 kg, because of the unfavourable climatic conditions. Proportional quantities of fertilizer were allocated to the villages and sold to farmers at the official government price.

Soybean seed in 1 kg packs was delivered to communities in the presence of local leaders. Each village worked out its own distribution mechanism on the understanding that beneficiary households would give back 1 kg of seed after harvest, enabling other households to benefit from the scheme. Some wards appointed a community representative to collect the seed after harvest, others vested this role in the ward head. A 100 percent repayment rate to the seed bank was recorded.

The experience highlighted the possibilities of establishing a sustainable seed bank in the villages at little or no cost, which can help poor food-insecure households to boost food production.

POST-INNOVATION

The results of the PRA on the HFS and nutritional situation in Kano state in 1996 surprised the team from the agriculture, health education and community development sectors and the technical working group, which deliberated on possible

TABLE 1
Summary of the programme components and key implementers

Component	Main implementing unit/agency
1. Creation of an HFS and nutrition coordinating and monitoring group and a technical commission to facilitate creation of body with influence on resource allocation	Ministry of Agriculture (SMOA) in liaison with Cabinet Office
2. Training of extension workers on HFS and nutrition and participatory extension techniques	Agricultural extension, community health education and Agency for Mass Education (AME) Women's Affairs
3. Incorporation of HFS and nutrition issues in pre-service training programmes at tertiary level and teaching of agriculture and home economics in schools	Colleges of education, schools of nursing, schools of agriculture and other health training institutions
4. Public information on preventable forms of malnutrition and diseases and links between HFS, environmental health and nutritional well-being	Agricultural extension, community health education and AME Women's Affairs
5. Community mobilization for HFS and community improvement and improved access to credit instruments	Banks, Family Economic Advancement Programme (FEAP) and state and local government agencies
6. Improvement of farmers' access to agriculture inputs through a task force under the chairmanship of the proposed HFS and nutrition coordinating body	Task force made up of SMOA, Kano Agricultural and Rural Development Authority (KNARDA), Kano State Agricultural Company (KASCO) and Institute of Agricultural Research, Ahmadu Bello University, Zaria (IAR-Zaria)
7. Improvement of mobility and number of agricultural extension workers and training of selected farmers in areas without extension workers	KNARDA
8. Increase in irrigated land by 19 850 ha by 2001	KNARDA and State Ministry of Water Resources (SMOWR)
9. Promotion of home and school gardens and management of small ruminants and poultry	AME Women's Affairs, KNARDA, SMOA and State Ministry of Agriculture (SOME)
10. Increase in milk production (artificial insemination) and development of grazing land reserves	SMOA
11. Strengthening of animal disease control programme and improvement in mobility of vet hospital/clinic staff	SMOA, local governments and KNARDA
12. Increase in fingerling production and development of programme for re-stocking existing water bodies	SMOA
13. Upgrading and facilitating dissemination of time- and labour-saving food processing and preservation technologies	KNARDA and AME Women's Affairs
14. Short-term distribution of iron and folate tablets and vitamin A capsules while promoting production and consumption of vitamin A and iron-rich foods	State Ministry of Health (SMOH) and local governments
15. Monitoring of salt iodization, resuscitating growth monitoring, revitalizing child immunization and increasing access to preventive and curative health services	SMOH and local governments
16. Improvement of access to potable water	SMOH and SMOWR
17. Construction and maintenance of access roads	Local governments and communities

interventions for **HFS** and nutrition improvement.

Kano state had been perceived as the grain basket of the nation since it hosted the famous Dawanau Grains Market, which distributes grain to neighbouring countries such as Cameroon, Chad and the Niger. The high levels of household food insecurity and malnutrition, evident from the local terms denoting different degrees of food insecurity and clinical forms of malnutrition, were unexpected. The need to create awareness about the magnitude of the problem and its socio-economic consequences became apparent. Measures proposed to alleviate the situation were therefore welcomed and resulted in rapid government approval of the action programme.

Implementation began in January 1998 with the creation of the Kano State **HFS** and Nutrition Planning and Coordinating Committee based in the Cabinet Office. The programme strategy gave priority to establishing a mechanism for community and intersector consultative planning and coordinated intersector efforts during implementation.

At community level, extension workers trained in participatory extension techniques will assist communities to produce **HFS**, nutrition and health promotion plans with a self-monitoring mechanism. Aspects requiring support from higher levels will be dealt with at local government level or passed on to the state-level coordinating body for action.

This process will be started in areas covered during the action programme in December 1996. Constraints to **HFS** and nutrition improvement in these areas are known and community opinion on desirable action is documented. Community associations, self-help groups or village development committees are a suitable entry point for community mobilization. Other areas will be phased in, taking into account experiences gained in the appraised areas.

The ward is the smallest development unit, followed by the village, local government and state government. The **HFS** and nutrition planning and coordination committees will be formed at ward, village and local government levels. Each ward planning and coordinating committee, led by the ward head, will include representatives of community groups, a school representative, the traditional birth attendant and voluntary village health worker and the agricultural extension agent. At village level, the village head chairs the committee and membership comprises community representation from ward committees and village-level extension workers. At local government level, the committee is chaired by the local government secretary and membership comprises village committee representatives and sectors at local government level. At state level, the proposed **HFS** and nutrition body will coordinate and monitor sector efforts through liaison officers in the relevant sectors.

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