



# Examining the food environment in Uganda and Zambia

Examining local food environments, their impact on the diets of rural and urban households and experiences from the Sustainable Nutrition for All (SN4A) project



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## About SNV

SNV is a not-for-profit international development organisation that makes a lasting difference in the lives of people living in poverty by helping them raise incomes and access basic services. We focus on three sectors and have a long-term, local presence in over 25 countries in Asia, Africa and Latin America. Our team of more than 1,300 staff is the backbone of SNV. For more information: [www.snv.org](http://www.snv.org)

## About the Sustainable Nutrition for All (SN4A) project

Supported by the Swiss Agency for Development and Co-operation (SDC) and in partnership with the Wageningen Centre for Development and Innovation (WCDI), SNV is pioneering a new and innovative model to empower communities in Zambia and Uganda to reduce the causes of malnutrition, themselves.

Malnutrition is caused by inadequate diets, and affects millions of people worldwide. Causing stunted growth and preventing normal physical and mental development, malnutrition not only impacts this generation but its effects can be inherited by the next. There are many complex reasons why people don't eat a healthy diverse diet including: a lack of access to a variety of foods, a lack of knowledge of the benefits of a diverse diet, and cultural norms and traditions that govern which foods are eaten by different members of the household. Many interventions in the past have neglected to address all of these complexities; assuming that with enough food to eat, good nutrition will follow.

The Sustainable Nutrition 4 All (SN4A) project is different. It uses a holistic approach that addresses all of these factors simultaneously; improving nutrition by building the capacity of communities to make the change themselves. Improved nutrition outcomes are addressed by encouraging community adoption of agro-biodiversity and improved dietary diversity, particularly at household level. The SN4A approach induces behavioural change by triggering an understanding of the critical factors for improved nutrition, with a special focus on intra-household gender relations. SN4A also increases local capacity to trigger demand for more nutritious foods, while also improving the supply of nutrient-rich vegetables from smallholder farmers, and increasing sub-national governance capacity. More information is available on the [SNV website](http://www.snv.org).

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## COVID-19 update

Undoubtedly, food security and nutrition progress is threatened by the COVID-19 pandemic. Pre-COVID-19 hundreds of millions of people were already suffering from malnutrition. The combined effects of COVID-19 and the corresponding mitigation measures could, in the long-term, disrupt the functioning of food systems.<sup>1,2</sup>

As highlighted in the recent Global Nutrition Report 2020<sup>3</sup>, current food systems do not enable people to make healthy food choices. The vast majority of people today cannot access or afford a healthy diet and this is likely to be exacerbated by the current pandemic.

### Note on COVID19

The findings presented in this survey are primarily from data collected pre-COVID 19. Undoubtedly, the COVID-19 pandemic is a health and human crisis that threatens the food and nutrition security of millions of people globally. Considering the level of hunger and malnutrition before the pandemic, programmes like Sustainable Nutrition for All, are taking immediate action to mitigate the immediate and long term impact. The Global Report on Food Crises estimates that 135 million people were food insecure in 2019, but more recent World Food Programme (WFP) projections indicate that, because of the economic effects of and supply chain disruptions associated with COVID-19, this number could double in 2020, to 265 million people. The recent Lancet Global Health estimates the effects of these disruptions on maternal and under-5 child deaths in 118 low-income and middle-income countries. They find that even a small reduction in coverage and use of maternal and child health services (reductions of 9.8-18.5%) over 6 months could lead to 253,500 additional child deaths and 12,200 additional maternal deaths per month, with worst-case scenario disruptions potentially resulting in an excess 1 157 000 child deaths and 56 700 maternal deaths over six months.<sup>a,b</sup>

Although this paper focuses on data pre-COVID 19, SN4A is currently undertaking rapid assessments to monitor potential impact of the pandemic including- potential increases in acute malnutrition, risk perceptions associated with food, its availability and prices, labour and access to inputs. To date, the rapid assessments have not indicated a rise in acute malnutrition, however this may not reflect an accurate picture as some mothers were not able to access the health centres for routine child growth monitoring. Moving forward the programme will continue to promote nutritious diets to build immunity, and prioritise hygiene (hand-washing) and food safety/hygiene messages. At the household level SN4A will continue to promote home gardens and small animal management, to ensure a supply of food in the immediate and long term. SN4A is working with local Government through its COVID-19 Taskforce to advocate for nutrition in response and recovery efforts.

a. UN, 2020. The impact of COVID-19 on food security and nutrition. Policy Brief.

b. Robertson, T., et al., 2020. Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: a modelling study. The Lancet, Global Health 8(7): E901-E908.

1. UN, 2020. The impact of COVID-19 on food security and nutrition. Policy Brief

2. FAO. 2020. Mitigating risks to food systems during COVID-19: Reducing food loss and waste. Rome. <https://doi.org/10.4060/ca9056en>

3. 2020 Global Nutrition Report: Action on equity to end malnutrition. Bristol, UK: Development Initiatives.

## Summary

In this paper we draw on experiences from the Sustainable Nutrition for All project in Uganda and Zambia to get a better understanding of the food environment in rural and urban communities. The paper first explores the food environment dimensions of availability, accessibility and affordability for Uganda and Zambia, using secondary (national level) data sources. After that, the paper focuses on project experiences in addressing the main challenges for each of these dimensions, and we share related learnings from the project mid-term review, a market survey and focus group discussions with key stakeholders.<sup>4</sup>

This is the first of two papers. As the foods available in a given food environment are also shaped by consumer demand, the next paper in the SN4A series will focus on consumer demand and dietary practices.

Supported by the Swiss Agency for Development and Co-operation (SDC) and in partnership with the Wageningen Centre for Development and Innovation (WCDI), SNV's Sustainable Nutrition for All (SN4A) project aims to improve nutrition outcomes through the adoption of agro-biodiversity and improved dietary diversity and hygiene practices at intra-household level. The first phase of SN4A was implemented in four districts in Uganda and Zambia, reaching 4,900 households in Isoka and Chinsali in Zambia and 12,310 households in Kasese and Kyenjojo in Uganda. Phase 1 was successful in increasing both the average dietary diversity score (DDS) for infants 6-23 months and minimum dietary diversity for women of reproductive age (WRA) in the 4 targeted districts. SN4A phase 2 (2018-2021) has scaled to two additional districts, Kasama in Zambia and Kakumiro in Uganda. The goal of the second phase is to ascertain the impact of this programme on nutritional outcomes, i.e. chronic malnutrition. SN4A addresses four critical pillars simultaneously- demand creation through triggering; social and behaviour change communication, nutrition sensitive agriculture and governance.

More information is available on the [SNV website](#).

4. Information for this paper was collated from Focus Group Discussions in 1 typical urban/peri-urban and 1 typical rural community in the SN4A districts in Uganda and Zambia. The FGDs were held with District Nutrition Coordinating Committee (DNCC), SNCC, hub NCC and community Nutrition Action Groups (NAGS) members.



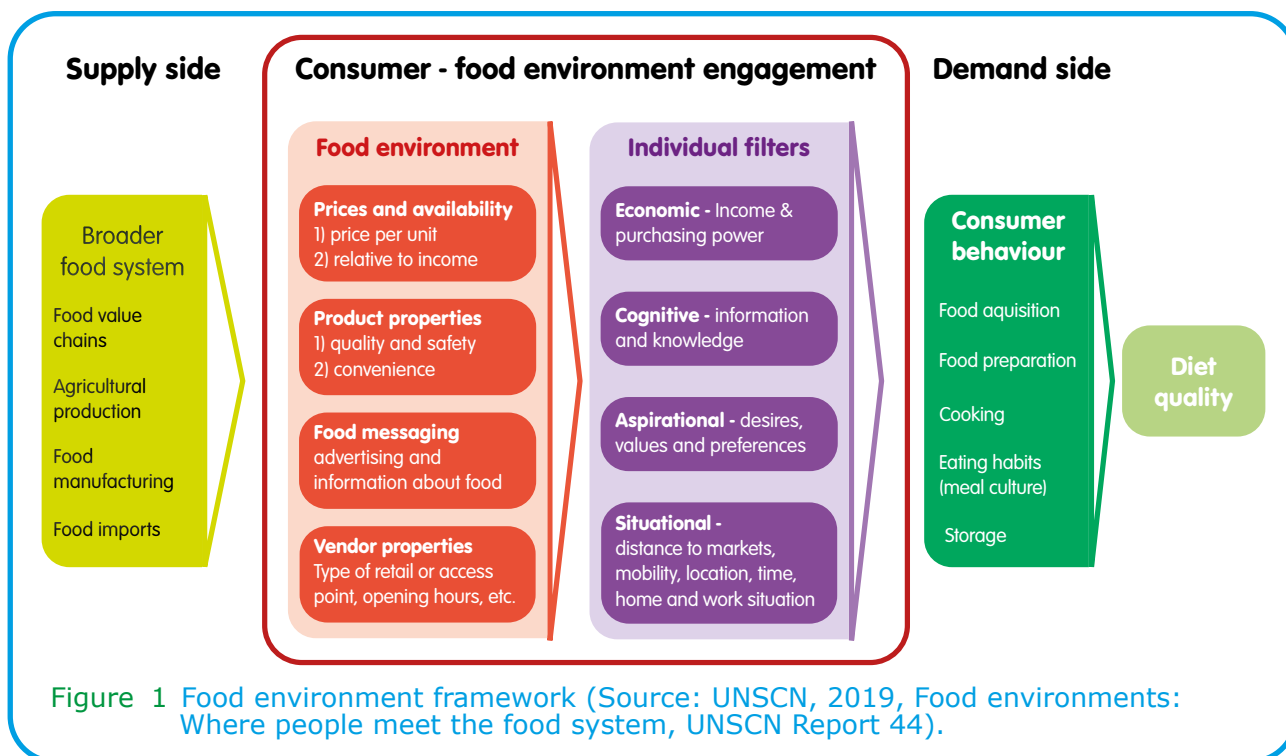
## Introduction

Over the last two decades, the main focus of agriculture-nutrition research has been on how households' production may affect the nutrition of women and children, mainly through home consumption of produce or selling commodities to purchase more diverse, higher quality diets. This research has generated many positive findings including the importance of gender, social and behaviour change communication (SBCC); the positive value of production diversity for rural households and the importance of rural markets and infrastructure.<sup>5</sup>

In recent years, the concepts of food systems and food environments have garnered attention in the development context. The food environment refers to the interface that mediates one's food acquisition and consumption with the wider food system.<sup>6</sup> In essence, the food environment has been defined as the availability, affordability, convenience and desirability of various foods<sup>7</sup>

(figure 1). The food environment literature has been primarily focused on high-income countries. The food environment in low-income and middle-income country contexts often have different characteristics, and there is a need to examine both wild/cultivated food environments (includes subsistence) such as home gardens and the market food environment (retail or built such as stores, vendors, kiosks etc.)

As noted in the 2020 Global Nutrition Report, the food environment, where consumers make decisions about what to eat, is inequitable in terms of physical access, affordability and quality of foods. The vast majority of people today cannot access or afford a healthy diet. The reasons for this are complex. For example, agriculture systems have largely focused on staple grains like maize, wheat, and rice. However, a nutritious diets needs diversity, with healthier foods like fruits, and vegetables.



5. Ilana Cliffer, William A. Masters, Johanna Andrews Trevino, Patrick Webb and Shibani Ghosh. Food systems and nutrition: emerging evidence and research opportunities, Nutrition Innovation Lab, October 2019.
6. Turner, C., Kadiyala, S., Aggarwal, A., Coates, J., Drewnowski, A., Hawkes, C., Herforth, A., Kalamatianou, S., Walls, H. (2017). Concepts and methods for food environment research in low and middle income countries. Agriculture, Nutrition and Health Academy Food Environments Working Group (ANH-FEWG). Innovative Methods and Metrics for Agriculture and Nutrition Actions (IMMANA) programme. London, UK.
7. Herforth, A., and Ahmed, S., 2015. The food environment, its effects on dietary consumption, and potential for measurement within agriculture-nutrition interventions. Food Security (7): 505-520.

## Exploring the wider food environment

Previous work on how local agriculture and the food environment influence diets in low income countries has focused primarily on household dietary diversity relative to their own production diversity. Increasing production diversity on smallholder farms is one pathway to improve smallholder diets, particularly for subsistence farmers. Recent research<sup>8</sup> indicates that production diversity can lead to dietary diversity, but not when households live in close proximity to a food market. Market and income development open up new opportunities as many farm households buy some of their food from the market.<sup>9</sup> However, the diversity and nutritional value of products offered in rural markets can be limited and/or unaffordable. Hence if the diversity of production and market systems are narrow, rural households have less choice, resulting in less nutritious diets. A shift to healthier diets requires that the nutritious foods are available, accessible and affordable for low income households.<sup>10</sup>

Many nutrient dense foods such as animal source foods (ASFs), fruit and vegetables are not easily stored or traded in underdeveloped rural settings, hence such food may not be accessible.<sup>11</sup>

Where do people access foods? This certainly can vary according to the context and season. In Ethiopia, for example, purchased foods account for more than a third of total calorie consumption during harvest season, and more than a half of all calories consumed during the lean season. This suggests that markets and purchased foods play a critical role in dietary quality.<sup>12</sup> However, the functioning of markets can vary. Improved roads and market infrastructure clearly

play important roles, as well as improved transport, storage and processing facilities, access to credit, information and production technologies.

If households are increasingly using markets to access food, are they able to afford a healthy diet? Recent reports, such as the EAT-Lancet indicate that a healthy and environmentally sustainable diet is often unaffordable for the poor. The EAT-Lancet reference diet is rich in fruits and vegetables, with proteins and fats sourced mainly from plant-based foods and unsaturated oils from fish, and carbohydrates from whole grains.<sup>13</sup> For at least 1.58 billion people, mostly in South Asia and sub-Saharan Africa, the cost of this diet actually exceeds their total income. This is largely because of the higher cost food groups such as ASFs, fruit and vegetables. This is also reflected in the World Food Programmes, Fill the Nutrient Gap Analysis.

Historically food security policies in Africa were often concerned about improving the production of cereals and other starchy staple foods. This in turn has affected the foods that are available at the household and local market level.

8. Hirvonen, K., and Hoddinott, J., 2017. Agricultural production and children's diets: Evidence from rural Ethiopia. *Agricultural Economics* 2017.

9. Sibhatu KT, Qaim M (2017) Rural food security, subsistence agriculture, and seasonality. *PLoS ONE* 12(10): e0186406. <https://doi.org/10.1371/journal.pone.0186406>

10. Hirvonen, K., 2020. Affordability of the EAT-Lancet reference diet: a global analysis. Vol. 8(1) PE59-E66

11. Headey, D., et al., 2019. Rural Food Markets and Child Nutrition. *Amer. J. Agr. Econ.* 101(5): 1311-1327.

12. Sibhatu KT, Qaim M (2017) Rural food security, subsistence agriculture, and seasonality. *PLoS ONE* 12(10): e0186406. <https://doi.org/10.1371/journal.pone.0186406>

13. Hirvonen, K., 2020. Affordability of the EAT-Lancet reference diet: a global analysis. Vol. 8(1) PE59-E66

## The food environment in Zambia

Supply and physical availability is one determinant of people's access to food. Subsistence farming is a major livelihood and food source for many households in Zambia. Rainfall and seasonality affect subsistence food production, and similar to the Ethiopian situation as highlighted in the previous section, even largely subsistence households need to purchase food, making most rural farming households both producers and consumers. The major staple is maize, largely enabled by Zambia Food Policy where input and output subsidies for its production account for around 80% of

the agricultural budget.<sup>14</sup> The availability of many nutrient dense foods has declined, and for many foods, from an already low baseline. For example, the availability of fruit and vegetables of 101g per capita per day is far below the WHO/FAO recommendation of 400 grammes. National per capita statistics can also mask the sub-national variations in availability, which means that actual availability may be even lower in some of the areas. Figure 2, from the Food Systems Dashboard, illustrates that 71% of dietary energy comes from cereals, roots and tubers. This figure is higher than the African

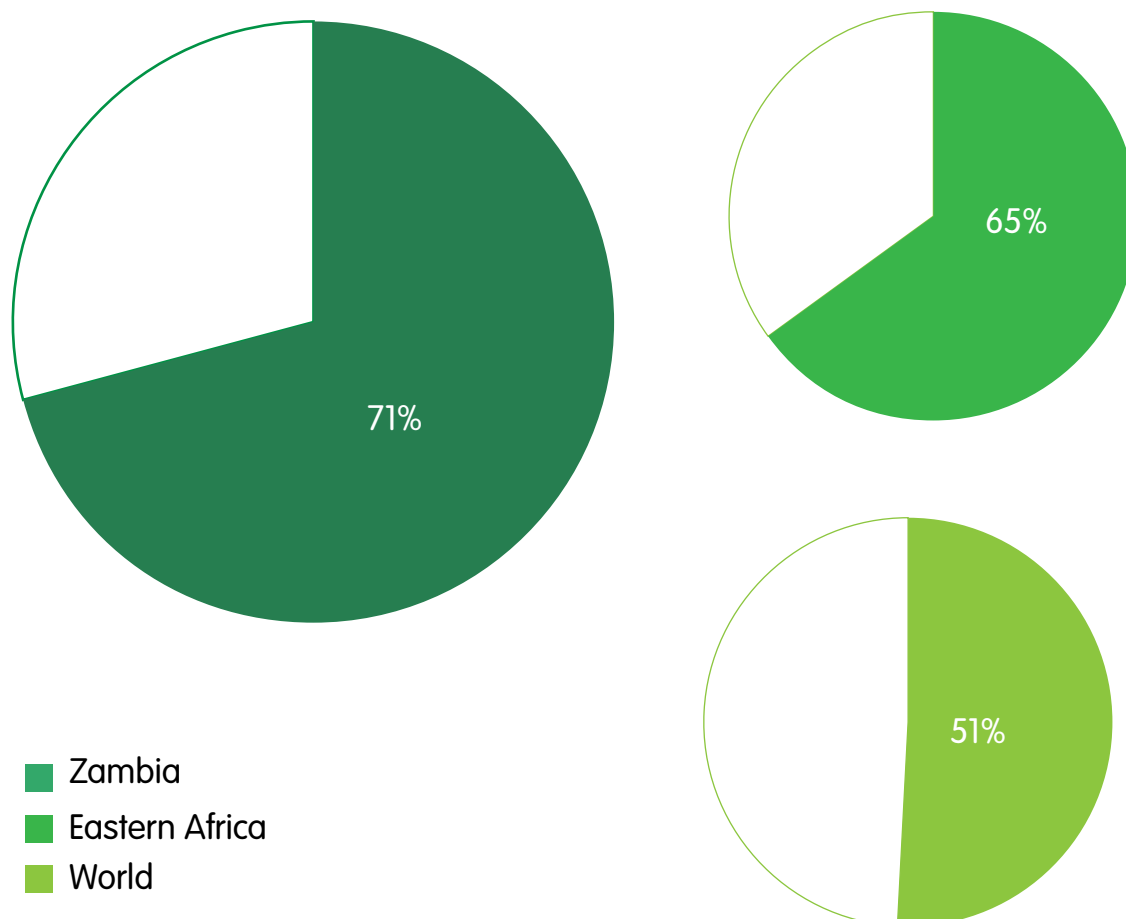


Figure 2 Share of dietary energy from cereals, roots and tubers (Zambia Country Profile Food Systems Dashboard).

14. Chapoto, A., Zulu-Mbata, O., Hoffman, B. D., Kabaghe, C., Sitko, N., Kuteya, A., & Zulu, B. (2015). The Politics of Maize in Zambia: Who holds the Keys to Change the Status Quo? (IAPRI Working Paper 99). Lusaka: IAPRI.



“The switch to more nutritious foods is one of the low-cost and effective ways of addressing stunting and malnutrition in the country” - Zambia’s Vice President, Ms. Inonga Wina, 2019.

average, at 65%. Figure 3 highlights that the production of many nutritious foods such as fruit, pulses, eggs and meat have decreased since the year 2000.

Due to the country’s large landmass, Zambia’s population is quite spread out. This factor along with poor rural infrastructure limits market access. Local food supply systems are also common. Over recent

decades, rural incomes have decreased and inequitable wealth distribution is also visible in urban areas.

Another key determinant of food access is pricing (economic access). While the cost of food has reduced overall, many of the key nutrient-rich foods in the Zambian diet have become more expensive relative to staple foods over time, thereby affecting the affordability of nutritious diets. In rural Zambia about 39% of rural households are net buyers of maize. Figure 4 illustrates that the cost of a nutritious diet is 4060 Kwacha, accounting for 61% of household expenditure. Traditional Zambian diets are dominated by starches, for example Nshima (maize meal porridge) with side dishes such

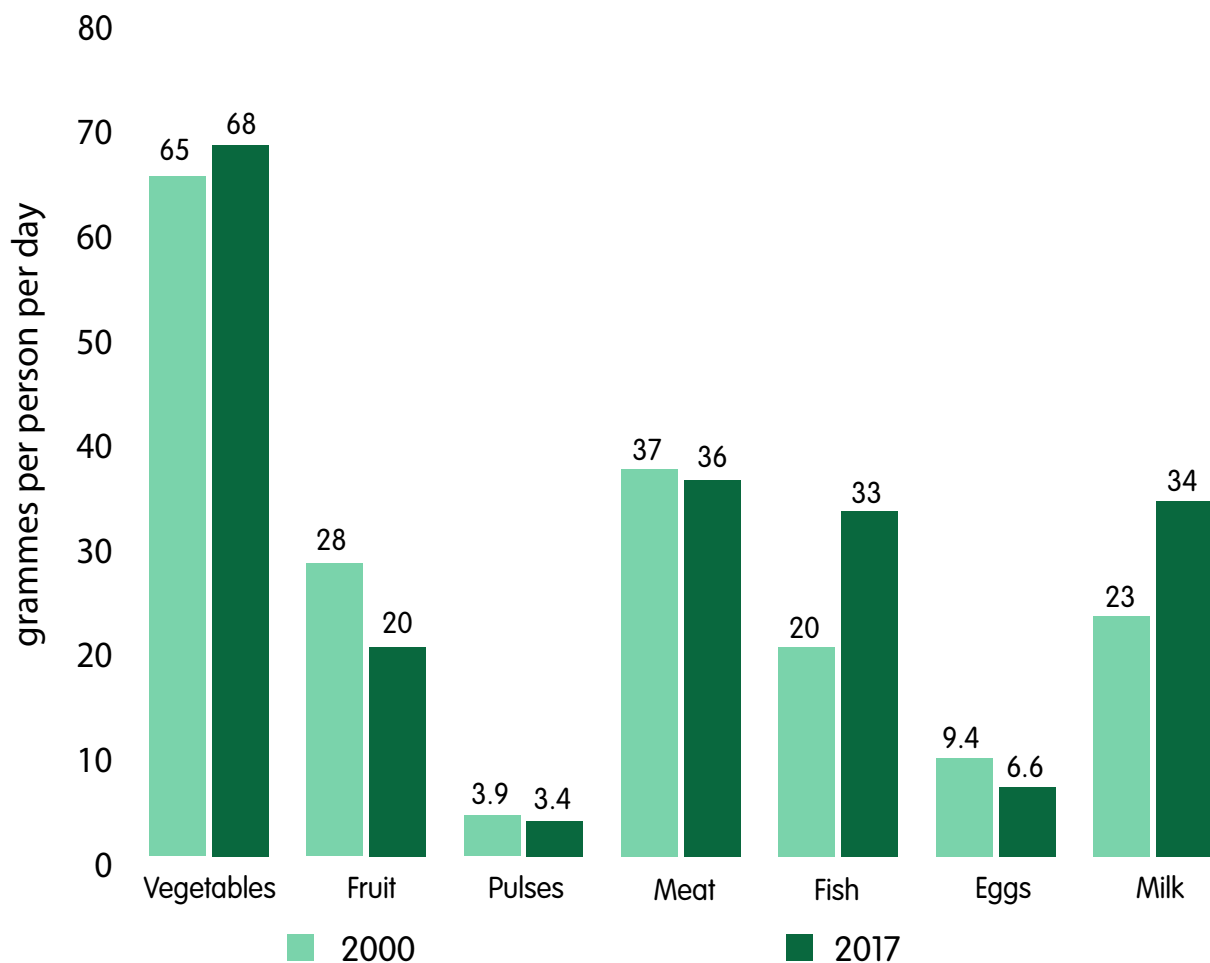


Figure 3 Supply of vegetables, fruit, pulses, meat, fish, eggs and milk (g/person/day) (Zambia Country Profile Food Systems Dashboard).

as relish. A recent survey in urban areas of Zambia found that fruit was consumed on an average of two days per week, vegetables 6 days per week and over 90% of individuals consumed less than the recommended five servings of fruits and vegetables per day. There was also a difference between richer and poorer households, with a survey showing that 27% of richer but only 6% of poorer households eat fruit at least once per day. Of protein sources, groundnut and beans are most consumed and to a lesser extent fish, chicken, eggs and beef.<sup>15</sup>

In the main urban hubs, such as Lusaka, supermarkets are increasingly visible. The average household in Lusaka spends about 45% of its food budget for purchases in modern retail outlets.<sup>16</sup> However, not all urban residents can afford supermarket prices. In smaller secondary cities and towns, households use a combination of food outlets, local shops and markets.<sup>17</sup>

In terms of the enabling environment the national agricultural policy is focused on improving production and productivity

through formal enterprises, including farmers' cooperatives and groups, but does not involve informal food trading. The Second National Agriculture Policy (SNAP) envisions "an efficient, competitive and sustainable agricultural sector, which assures food and nutrition security, increased employment opportunities and incomes". The policy aims to promote agricultural productivity including the improved efficiency of agricultural markets. However, the measures implemented to achieve this objective do not consider informal trade. The importance of informal food markets has been well-documented<sup>18</sup> as they offer critical opportunities for livelihoods, particularly for women and youth, and are essential to providing nutritious food such as fruit, vegetables and animal source foods. Informal market vendors face a number of challenges such as access to storage, electricity and/or running water.<sup>19</sup>



Figure 4 Cost of nutrient adequacy (CoNA) Zambia (Food Systems Dashboard).  
Source: Candasa, 2011 data (1 ZMW = 1,000 ZMK)

15. Harris, J. et al., 2019. Nutrition transition in Zambia: Changing food supply, food prices, household consumption, diet and nutrition outcomes. Food Security volume 11, pages371–387.
16. Khonje, M.G., Ecker, O., Qaim, M., 2020. Effects of modern food retailers on adult and child diets and nutrition. Nutrients 12(6):1714
17. Harris, J. et al., 2019. Nutrition transition in Zambia: Changing food supply, food prices, household consumption, diet and nutrition outcomes. Food Security volume 11, pages371–387.
18. Mwango S. M. et al., 2019. Sustainable diets for all discussion paper. Informal food markets in Zambia. Perspective from vendors, consumers and policymakers in Lusaka and Kitwe. Development through trade. IIED and HIVOS Discussion Paper 2.
19. Mwango S. M. et al., 2019. Sustainable diets for all discussion paper. Informal food markets in Zambia. Perspective from vendors, consumers and policymakers in Lusaka and Kitwe. Development through trade. IIED and HIVOS Discussion Paper 2.

## Insights from the SN4A project in Zambia

### Improving supply and availability of nutritious foods<sup>20</sup>

The main staple foods consumed in the SN4A Zambia target areas are Nshima (maize porridge), rice and potatoes, which are consumed with side dishes such as beans, kapenta or seasonal vegetables. Many rural households in these communities rely on growing their own food (subsistence)<sup>21</sup>. Hence, seasonality is a major factor that affects the availability of nutritious foods, such as fruits like mangoes, guavas, avocados and amasuku. Less availability is also noted during the dry season because of irrigation issues. In the same SN4A districts, there is also a fish ban from December to February which affects fish availability and prices. Some households also purchase food but they are restricted by their limited purchasing power. Both home production and market access affect the household's food security. The majority of SN4A households (between 79-95%) experience months of food insecurity, particularly between November and March.

A range of Nutrition Sensitive Agriculture (NSA) activities have been implemented by SN4A to improve the supply and availability of nutritious foods. Kitchen gardens have proved to be successful. SN4A worked closely with the National Agriculture Research Institute to assess what vegetables are suited to the landscape. A crop and livestock availability study informed the crop calendar and agro-inputs were provided for training and demonstration purposes. Due to irrigation issues, the SN4A project promotes drought resistant local vegetable varieties such as amaranthus. Within the communities the Nutrition Action Group (NAG) members (community volunteers) and households have been motivated by the success of demonstration garden plots, and started gardens in their own homes. Hence the strategic location of plots in communal areas is important to inspire and motivate community members. Other NSA activities include trainings on agronomical practices in vegetable production and management, setting up of livestock management demonstration centres, trainings in improving



Kasama food market - silverfish and caterpillars for sale

20. **Note:** data was collected from urban and rural areas between September and November 2019. For the purpose of this study, areas near trading centres were classified as urban. Focus group discussions were carried out with DNCC, SNCC, HNCC and NAG members. Household and market visits were carried out in the SN4A districts.

21. Pittore, K., Herens, M., 2018. Sustainable Nutrition for All Phase II Report. Community Mapping 2018.

food preservations and storage, improving cooking practices, establishing market linkages.

In the rural areas, it is difficult to access ASFs, compared to fruit and vegetables. Poultry production is being promoted but the intervention has been somewhat successful. The 'pass-on approach' is promoted where one household gives a neighbour a chicken egg, however, Newcastle disease has hampered progress. SN4A also provides domestic processing training, using low cost solar drying materials. This is also linked with cooking demonstrations to promote the preparation and consumption of, for example, dried green leafy vegetables.

### Affordability of food and improving purchasing power.

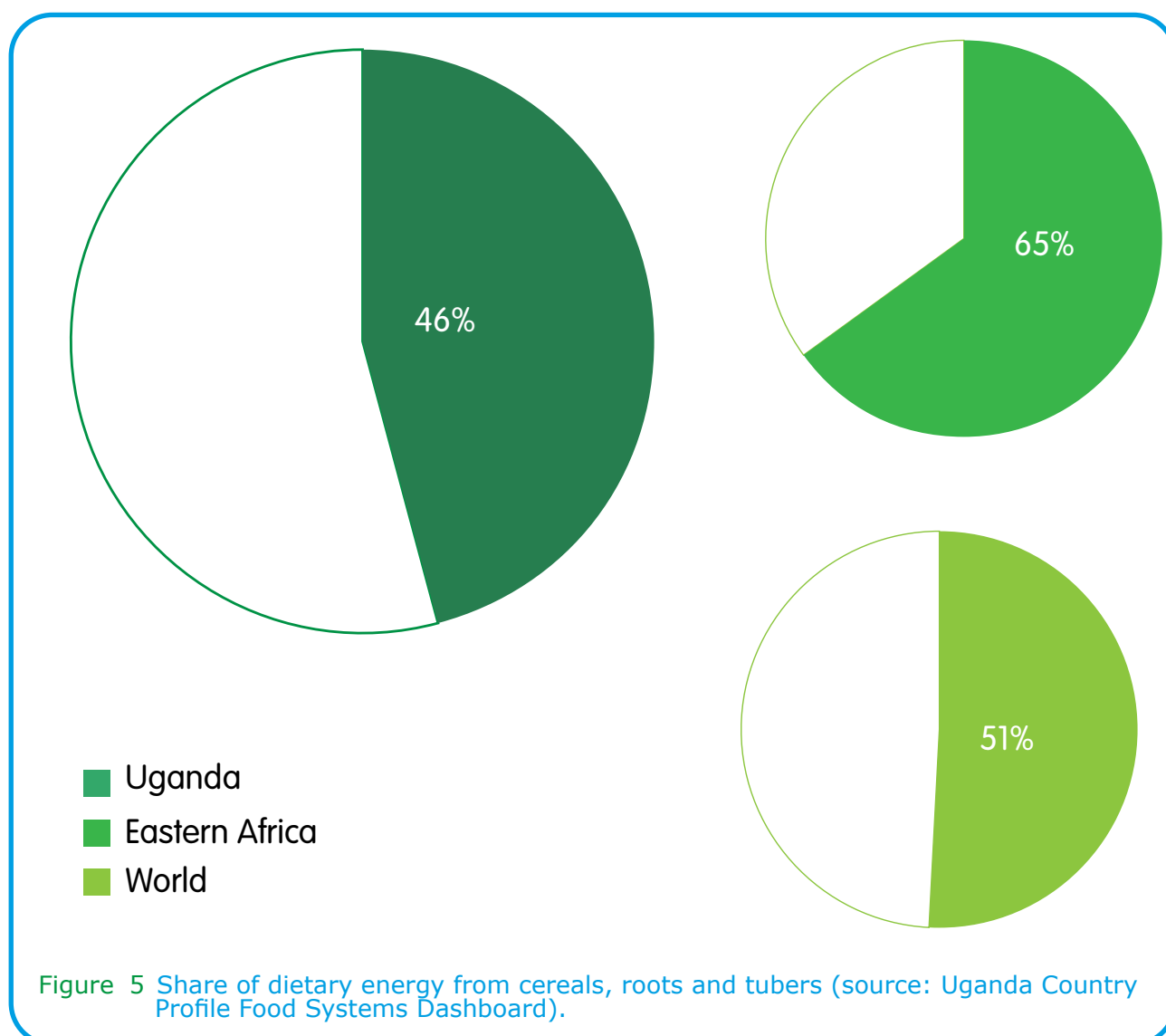
The project includes a market development component, with a main objective of improving purchasing power in households. (Note: SN4A also addresses intra-household dynamics as well as social and behaviour change communication, which are critical and will be discussed further in an upcoming paper. Please also refer to our previously published SN4A Technical papers on [dietary diversity](#) and [triggering](#)). SN4A Zambia selected crops that can be easily bulked and transported to the markets. Following an analysis of the cash crops, SN4A worked with the organisation Community Markets for Conservation (COMACO) to pilot the market development of rice. Rice has a high return within very poorly developed markets. The team started with a crop forecast to establish the tonnage expected to be produced by the farmers. This data was collected by all NAG members where rice is produced as a cash crop. The NAG members were then supported to aggregate the figures which were submitted to the Hub Staff. This data was shared with the project staff and became the basis on which the project team engaged COMACO in discussion on rice marketing. This activity is currently in its early stage.

The SN4A project also notes the difference between urban (Kasama) and rural households with regards to their ability to access food. In rural Zambia, some households may access markets only once a month. One of the main challenges is the physical distance to markets. In rural Zambia, to reach the nearest markets, the households have to walk on average two to two and half hours. These markets are often mobile and monthly, and are not permanent which makes the sale of crops and the purchase of food difficult. In Kasama urban, unlike in other parts of the district, market access is not a problem and large markets can be reached.<sup>22</sup> According to the District Nutrition Coordinating Committee (DNCC) in Kasama, many residents in Kasama depend on what they purchase hence are limited by their own income. As income generation in the urban setting is beyond the scope of the project, urban backyard gardens are being promoted. Seasonality also affects the food prices. According to the Kapongolo Primary School Hub in Kasama, households in the local communities don't have money or resources.

22. Pittore, K., Herens, M., 2018. Sustainable Nutrition for All Phase II Report. Community Mapping 2018.

## The food environment in Uganda

In Uganda, the climate and ecology lends itself well to food production. 40% of the country's land is used to grow food and the bi-modal season results in two harvest a year (except in Karamoja).<sup>23</sup> The main crops are plantain, roots and tubers, and cereals. As indicated in figure 5, 46% of dietary energy comes from cereals, roots and tubers and figure 6 indicates that the production and availability of nutritious foods is still limited.



23. FAO, 2020. GIEWS Country Brief Uganda.



In contrast to Zambia, the distance to markets is not a major issue, albeit the infrastructure can be poor in some regions. In fact, according to a recent WFP report, 55% of food consumed is purchased from markets. There are geographic variances with more urban than rural households accessing markets (see figure 7). Most households that produce nutritious food tend to sell it as a source of income.

Similar to Zambia, a nutritious diet is unaffordable to most Ugandan households. The WFP cost of the diet study found that it costs seven times more for a household to purchase a nutritious diet, compared to a diet that meets only their energy requirements, because fresh foods such as milk, dried fish and green leafy vegetables are more expensive. <sup>24</sup>

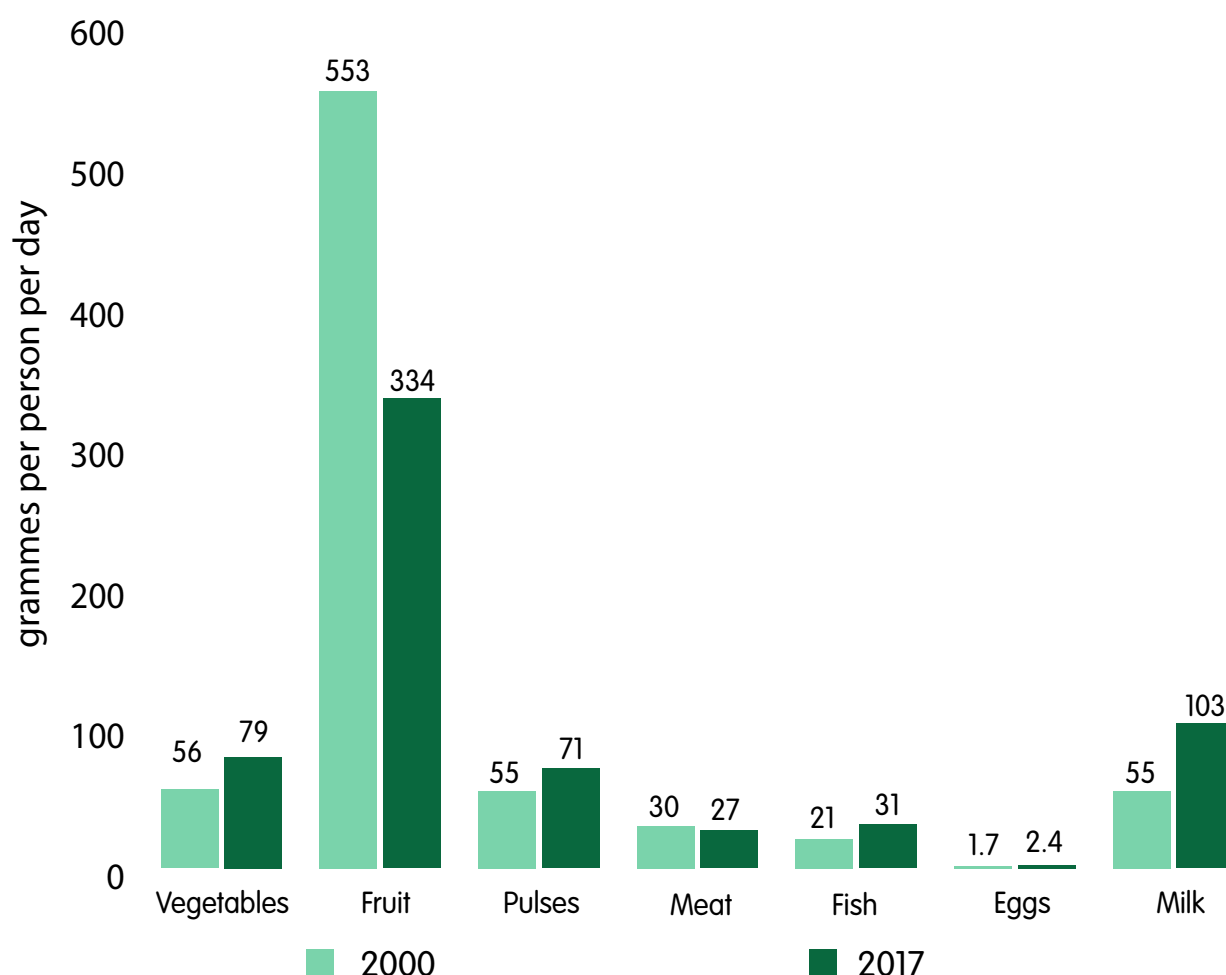


Figure 6 Supply of vegetables, fruit, pulses, meat, fish, eggs and milk (g/person/day) (source: Uganda Country Profile Food Systems Dashboard).

24. World Food Programme (WFP), 2019. Fill the Nutrient Gap- Uganda. National Summary Report.

There are also notable differences between urban and rural consumers. In a recent report<sup>25</sup> about the urban food environment in Mbale and Mbarara, it was noted that more food-secure, salaried, residents bought in bulk and stocked food, and were able to respond to price variations by travelling to other markets or to rural areas. Some of them also had their own rural farms or urban gardens. The least food secure (unemployed) were unable to engage in such food access strategies due to lower and more variable

incomes, lower mobility and more limited access to land.

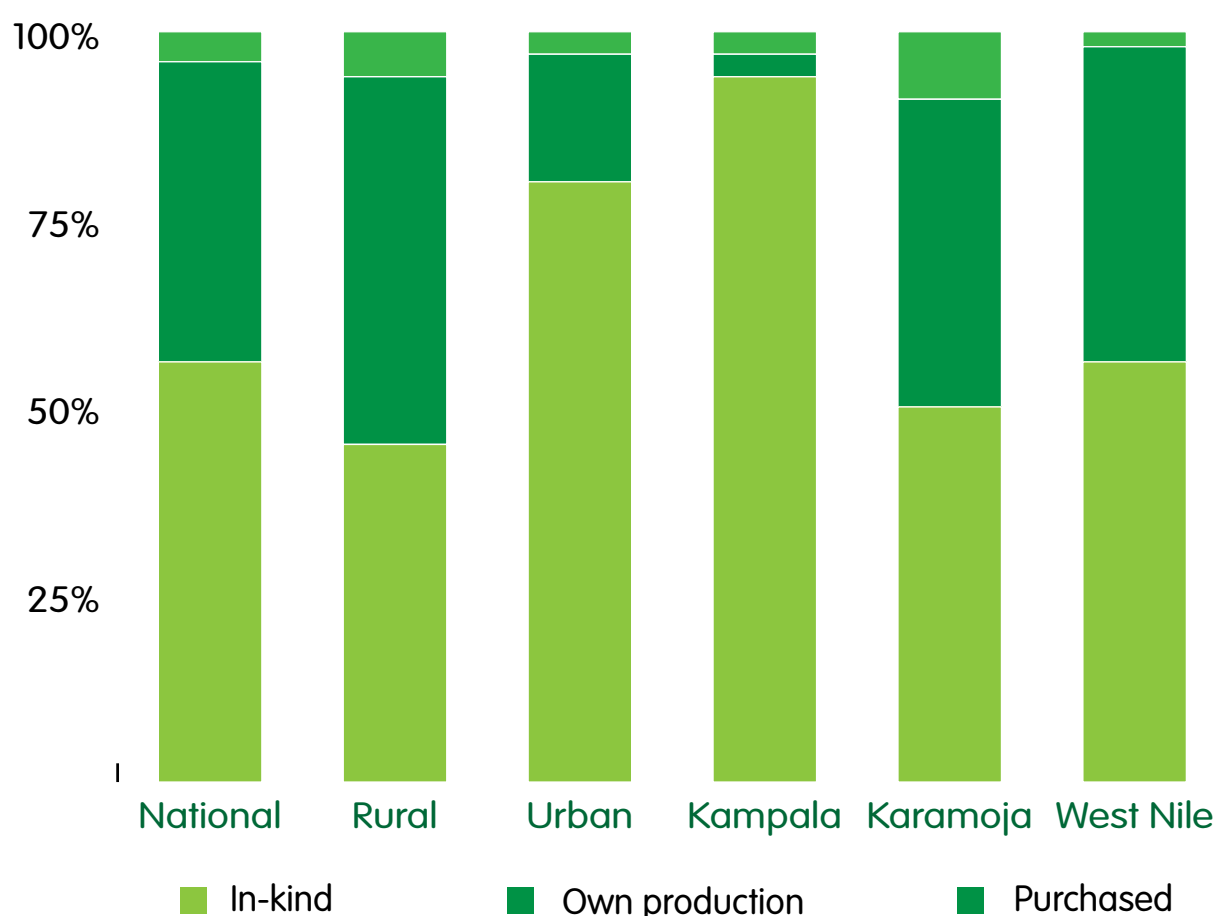


Figure 7 How households access food in Uganda (Source: WFP, 2019)

25. Mackay, H, 2019. Food sources and access strategies in Ugandan secondary cities: an intersectional analysis. Environment and Urbanization. Vol. 31(2): 375-396.

## Insights from the SN4A project in Uganda

### Improving supply and availability of nutritious foods<sup>26</sup>

Similar to Zambia, many rural Ugandan households rely on a combination of producing (for own consumption) and purchasing food. Over 90% of consumed foods are grown locally. The major crops include maize, rice, cassava, yam varieties like Balugu and Bukupa and groundnuts. For example, according to Kyenjojo DNCC, households typically eat grains (millet, maize), plantains, Matooke, root crops such as cassava and beans or groundnuts.

Seasonality is a major factor in accessing a healthy diet year-round. From October to December and May to June, food is plentiful. The lean months are generally from January to April and July to September. Fruits are scarce during the rainy season; vegetables in the dry season (January, February and July) and plant proteins in the planting season (March and April). Only staple grains and tubers such as cassava and maize are available throughout the year.

The SN4A project, through DNCCs, Sub-county Nutrition Coordination Committees (SNCCs), and Hub NCCs (HNCCs), has carried out many NSA activities to improve the availability of nutritious foods, including

guidance and training on small livestock, management, processing vegetables and kitchen gardens. Trainings, mentoring and support have also been provided through local government and community actors on pest and disease control, provision of quality seeds and organisation of groups for selling. All activities are contextualised to the district.

At the start of the project, the crop availability study informed the inputs for vegetable demonstration plots. Drought tolerant vegetables were promoted such as African eggplant, pumpkin leaves and amaranths. Due to the kitchen garden intervention, households 'now see the value of having a garden'. According to the recent mid-term evaluation<sup>27</sup>, the gardens all showed agro-biodiverse plots: a combination of fruit trees (minimum of three, but mostly more than three, including e.g. mango, avocado, jackfruit, banana, citrus), a variety of vegetables (a minimum of three, but mostly more than three, including e.g. tomato, African eggplant, spinach, amaranth), crops rich in protein, like pulses and beans, and nearly always have plantain and cassava, as well as (sweet)

"Seasonality doesn't affect those with money as they can buy food. Rural areas depend on the season- if it is the season for greens, people eat them. As it approaches the harvest season, the foods deplete."  
"Drought and heavy rains affect the availability of beans and groundnuts". DNCC Member, Kyenjojo



26. **Note:** data was collected from urban and rural areas between September and November 2019. For the purpose of this study, areas near trading centres were classified as urban. Focus group discussions were carried out with DNCC (Kakumiro, Kasese, Kyenjojo in Uganda, and Kasama in Zambia), SNCC, HNCC and NAG members. Household and market visits were carried out in the SN4A districts.

27. Bakker, S., Koopmanschap, E., 2019. Sustainable Nutrition for All- Phase II. Mid-term review report. Wageningen Centre for Development Innovation

potatoes. When DNCCs and SNCCs were asked what had improved replies included: “Previously only fruits were grown and consumed, now fruits and vegetables are grown and consumed”; “Vegetables were seen as wild plants, now growing them close to peoples’ homes increases access and also consumption.” Communities are motivated to “live in villages without malnutrition” and they appreciate that vegetable gardens can contribute to this goal.

Households who also had a solid baseline knowledge in vegetable production have been more productive. With additional technical advice, they are able to bring it to the next level of improved quality and yield. However, one of the main learnings of the programme is that people naturally allocate more time to the cash crops rather than the vegetables. Overall, kitchen gardens have been successful because they reduce food expenditure, are easily accessible and require less space. The schools have also played an instrumental role in promoting gardens, for example in Kakumiro, the Nutrition Go Green Programme has triggered many schools to establish their own plots.

However, in some cases there is a risk that vegetable gardens will become more commercial if the men are responsible- “Vegetable gardening was a women-thing, until men saw the market opportunity”.

In terms of seed multiplication, the recent SN4A Mid-Term Evaluation<sup>28</sup>, highlighted many positive examples of seed multiplication and exchange between households in the community.

The small animals vary across the districts with guinea pigs being more common in Kasese compared to rabbits in Kyenjojo. In Kakumiro, it was noted that there is a tendency to eat rabbits and chickens (mainly during festive season), but sell goats and pigs. Overall the SN4A project activities on small livestock promotion have been successful in increasing the availability of

ASFs.

The DNCCs, SNCCs, hub NCCs and SN4A community NAG members are active in NSA activities. In fact, the NAG groups are now viewed by the government as a respected entity and have been selected and linked to other services. In Kyenjojo, for example, they have now registered as a sub-county association and conduct activities such as seed multiplication and facilitation of market linkages. This has proved to be an additional incentive and motivation for the NAGs, who are community volunteers.

The influence of leaders should also not be underestimated. The chairperson in the Nkooko sub-county (Kakumiro), highlighted that he always grew fruit and vegetables, but he did not fully appreciate their value and importance in the diet. People trust him as a leader, and by demonstrating how to grow nutritious foods, he is having a wide impact in the community. “Children do not need medicine and children treated for malnutrition has decreased”.

SNV has partnered with CABI Plant wise Clinics and the Ministry of Agriculture, Animal Industry and Fisheries to establish Plant Clinics. To date 24 clinics have been set-up in the target districts where farmers seek advice in pest and disease identification and

“I didn’t know the relationship between the foods I used to prepare. Sometimes I would buy rice or posho (maize meal) and that’s what we would eat day in and day out when I did not have money. After the triggering in my village, I realised that my elder children could have gotten stunted and I did not want that to happen to my grandchildren. I planted a variety of vegetables around my home. Now, even if I don’t have money, we are still able to eat healthy because we have vegetables in our garden,” Bigirwa Yolesi, a housewife in Kisinga sub-county, Kasese district.

28. Bakker, S., Koopmanschap, E., 2019. Sustainable Nutrition for All- Phase II. Mid-term review report. Wageningen Centre for Development Innovation





Figure 8 Activities in Kisinga market



Figure 9 Boney Fish (Kiharanghangha) after being offloaded from a vehicle at Kisinga market in Kasese district

Figure 10 Mukene silver fish

## Creating demand and markets for Mukene

At the start of SN4A in 2015, it was noted that the consumption of animal source foods, particularly amongst children, was low. This was primarily due to limited purchasing power within the household as well as the issue of intra-household allocation of ASFs, where the male in the household would often receive the largest portion of meat or fish. Recognising this, SN4A Uganda developed a SBCC strategy to promote the production and consumption of mukene/silver fish. As men don't value mukene, infants and children were more likely to consume it. Throughout Phase 1 and the start of Phase 2, the demand for mukene increased. "Previously if you were eating mukene you were regarded as poor but now it is valued". Previously, the price of 'boney fish' (see figure 9) would often exceed the cost of mukene. However, due to the increased demand and the perceived nutritional value of mukene, the price has increased, yet it still remains a very affordable source of food. In Buhyabunga village market in Nyabuharwa subcounty, Kyenjojo district, for example, a cup of silver fish (500ml) costs 1000 Ush compared to 10,000Ush for a kilo of meat. Today, female NAG members who were involved in the original SBCC campaign are now selling the mukene in their local markets, hence are also benefiting from an economic and gender perspective.



treatment. The previous two seasons have seen an increase in army worm attack and the trained doctors were key in saving the household's fields in the four areas where they are operational.

### Affordability of food and improving purchasing power

The opportunity afforded by market development, to improve sale of produce and in turn to improve purchasing power is important. The project provides business training to the farmers to improve their business skills particularly in accessing markets.

In Kakumiro, one seed multiplier and his wife, who is a NAG member, have leveraged their strong partnership and ingenuity to establish a business. They grow a variety of local vegetables, African egg plants, carrots and bio-fortified beans at their home, which is next to a main road. Because of this accessible location, many passers-by buy seeds for these vegetables and beans. "People now stop on the road and request seeds". They are now proving to be 'positive deviants' in the community.

Bio-fortified crops are garnering more attention because of their potential to address micro-nutrient deficiencies. Iron-rich bean seeds were supplied by the National Agriculture Research Organisation (NARO) to the project and seed banks have been established. The first yield will be harvested this season, and the goal is to market the produce at a slightly higher price because of the nutrition value.

According to the DNCC in Kisinga, "incomes seriously affects what people consume". During the harvest season, households sell surplus food and can purchase other nutritious foods like meat and fish. Striking a balance between producing for own consumption and sale is critical. Households often sell the majority of food produced.

Compared to rural areas, peri-urban and urban households may access food throughout the year if they have the income

to purchase food items. Markets are a critical source of food for urban households, and increasingly even rural households are accessing markets to buy items such as fish, meat, cassava flour, groundnuts and beans. For example, in Kamahanga rural village (Kasese District) households can access three local markets (Kisinga, Kajwenge, Kanyambara), and if they can afford to, they purchase food items. In Kakumiro it was noted that in urban areas, some people valued more expensive foods rather than nutrient density.

As noted, food accessibility depends on social and economic dynamics. The latter is an issue. In markets, foods may not be available or affordable all year round. The market survey highlighted that food prices vary during the year. As expected, during the harvest season (June-July and December-January), the price is lower as supply is high, and during the planting season the supply drops but consumer demand remains high. Hence the food prices increase. In recent years, the inconsistent rains have affected yields and the low harvests have resulted in increased prices for almost all foods. Vendors who sell perishable items indicated that the consumer demand shapes the price- "If consumers don't buy quickly we reduce the prices so that the food doesn't spoil especially tomatoes." During the lean season the foods are scarce in the market and the cost is high. Most urban dwellers rent their house and buy from the markets. Generally, they don't have kitchen gardens and small animals.

In the market survey, it was generally observed that the quality of food varied. For staples, grains and tubers the quality was noted as good, however for perishable items such as fruit and vegetables this was questionable. The absence of food safety regulations may be a factor.

The employment opportunities within markets are also essential for women and youth. It was observed during the market survey that staples grains, tubers and fruit and vegetables were mostly sold by female vendors.

## Immediate impact of COVID-19

As documented in recent reports,<sup>29</sup> the accessibility and affordability of healthy, sustainably produced food has become even more challenging in this pandemic. High value commodities, like fruits and vegetables, meat, fish and dairy, while readily available for now, tend to be more vulnerable to logistical problems because their production is labour intensive and the products are highly perishable.<sup>30</sup> In many countries, food prices are rising in cities. When food fails to reach wholesale and retail markets, farmers, pastoralist households, fisherfolks and traders suffer major income losses. This leaves fewer resources for preparing for the next season's planting, fish catches or livestock raising and slaughter.

In response to COVID-19 and Government measures, SN4A is conducting rapid assessments, to further inform the response and recovery efforts. SN4A is working closely with local Government and COVID-19 taskforces in this process.

To date the rapid assessments<sup>31</sup> indicate that:

- Reported acute malnutrition rates have not increased in the SN4A districts in Uganda and Zambia. This may not reflect an accurate picture as some mothers are not able to or are afraid to access the health centres for routine monitoring. Mothers are encouraged to attend the facilities and observe social distancing.
- There were no food misperceptions noted about the possible transmission of the virus through food. Positive messages about eating citrus fruits to build immunity and general hygiene and hand-washing messages were reported.
- The initial lock-down restrictions in movement by traders and farmers had an impact on the sale of produce (cash crops and horticulture) and on the availability and prices of some food products.

However, the Governments in Uganda and Zambia responded by making an exception for movement of food. In Zambia, it was difficult to ascertain farmers' access to markets because it is not the market season for the cash crops like maize.

- In Uganda, there was reported increase in food prices for most food except matooke. In Zambia, the increase in prices were also triggered by the depreciation of the Zambian Kwacha against the dollar.
- The primary constraint in food access is a result of interrelated factors of a lack of income, higher food prices and unemployment.
- Agro-input shops remained open in Uganda, but as there was no public transport some farmers were not able to access seed. Most farmers had kept some seed from the previous season. In Zambia, inputs are also available but the cost of inputs has increased, in particular fertiliser.
- It was also noted that some households are facing domestic misunderstandings and violence because of the limited income sources and other pressures.
- Local Government COVID-19 taskforces have been established in Uganda which continue to promote the production and consumption of nutritious foods.

To date some of the interventions employed by SN4A include service delivery using virtual platforms, ICT, and radio broadcasting; prioritising SBCC messages on food hygiene, food safety and promotion of healthy diets for improved immunity; continued promotion of home gardens and small animals for home consumption and facilitating access to markets to ensure the functioning of local food supply.

29. 2020 Global Nutrition Report: Action on equity to end malnutrition. Bristol, UK: Development Initiatives.

30. UN, 2020. The impact of COVID-19 on food security and nutrition. Policy Brief.

31. The assessments were conducted from 17-21 April and from 1-17 May 2020

## Conclusion

From our project experience in Uganda and Zambia, understanding the context is a critical step in developing strategies to improve access to healthy and nutritious diets. Increasing farm production diversity is important for rural, remote and/or subsistence households, but it is not always the best strategy to improve smallholder diets when market access is not an issue. Improving market access to sell and purchase diverse foods is important. Diverse food systems and environments are important but the level of system diversity is not equal to the level of diversity on every single farm.

Financial access, including cost of food and affordability, is paramount to healthy and nutritious diets. This has become even more pressing in light of the current pandemic. The efforts of Government, private sector and civil society are essential to shape high quality food environments. Businesses influence what is grown, processed and consumed and can make nutritious food more convenient and affordable. Governments can implement incentives which promote healthy diets. Further investment is needed in market led strategies that benefit the rural producers and the wider consumer base. For example, governments could support vendor/retailer access to water, electricity and cold storage and improve transportation infrastructure. As strategies are rolled out, it is imperative to measure the food environment, and document learnings from different contexts.

Insight from the project also reveals that some community members (the “positive deviants”) have more balanced diets and better health outcomes than others with the same resources. Community-led strategies and “positive deviance” can play a significant role in improving local food environments. The approach uses local available assets and is independent of external resources, thus makes the intervention more sustainable. In the project many of the “positive deviants” from phase 1 have excelled during phase 2. For example, households who had already established vegetable plots succeeded in diversifying the plots and selling surplus to buy other nutritious foods. The Mukene case study highlights that community members who promoted the consumption through SBCC, noticed increased consumer demand and were incentivised to sell the fish in local markets i.e. leveraging the concept of stimulating local consumer demand to kick-start markets. People are motivated for different reasons and it is important to leverage that trigger. For example, some are motivated by seeing the success of growing different foods in gardens, others by economic reasons or the recognition that they receive in the local community.

## Recommendations

Based on our analysis and project experiences we recommend the following to improve the food environment in Uganda and Zambia alike:

1. Strengthening rural markets needs to be included in strategies to improve food security and dietary quality. Diversifying farm and household production strategies should keep market developments in mind. If farm diversification responds to market incentives and builds on comparative advantage, it can improve dietary quality by generating cash income and adding to the diversity of food supplies in local markets.
2. Support earlier adopters and 'positive deviants' who play a key role in shaping the food environment.
3. Leverage coordination committees such as DNCCs and SNCCs to engage with private sector and civil society, to develop action plans which ensure healthy food environments
4. Integrate food environment indicators in development of M&E plans.



## COVID-19 related recommendations

Based on our project experience and quick assessment we recommend the following to minimise the impact of the COVID19 crisis on people's nutrition and food security:

1. Safeguard food and nutrition security, particularly for women and girls. All measures that SN4A considers to protect the food system and stimulate the economy, ensure that women are included, engaged and protected.
2. Support the role of SMEs and local businesses in providing safe and nutritious foods that are available and affordable year round.
3. Use monitoring and nutrition information systems to enable preparatory measures and fast responses that reach vulnerable population groups, but will also invest in long-term resilience through safeguarding FNS. SNV will continue to strengthen the monitoring of key indicators to assess direct and secondary impacts of COVID-19 to inform planning. We will continue to participate in national nutrition dialogues and multi-stakeholder platforms that reflect on safeguarding nutrition for example to address the gaps in the per capita availability of nutritious foods.





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