



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

The Malawi Food Composition Database (MAFOODS): Importance, development process, applications, and future priorities

Webinar Transcript

Katie Heneveld

Good morning, good afternoon, and evening. Thank you all for joining today's webinar to learn more about Malawi's Food Composition table. My name is Katie Heneveld, and I am an assistant researcher for the Feed the Future Innovation Lab for Nutrition and will be your MC for this webinar today. As attendees are joining, I will begin by going over some housekeeping items. I'd like to direct all attendees to a few functions on the Zoom webinar. At the bottom of your screen, you should see a chat icon and a Q&A icon. Use the chat feature to engage in relevant conversation with other attendees. If you have a question for one of the panelists, please use the Q&A feature. Panelists will respond to questions in the Q&A box throughout the webinar as they're able, and we have allotted the final 20 minutes of this webinar for the Q&A. If you're experiencing any technical difficulties, send a message in the chat box to "All panelists" so that our technical support staff can work with you to resolve them. This webinar is being recorded and will be made available on the Innovation Lab for Nutrition website and the USAID Advancing Nutrition website. There you can also register for upcoming webinars and view recordings and slide decks of previous webinars. We will repeat these technical housekeeping items in the chat throughout the webinar as people may join in at later times. The moderator for this webinar is Sanele Nkomani. Sanele is a registered dietitian and has a Master's in Nutrition from Stellenbosch University in South Africa. Her career has focused on developing clinical nutrition practice in developing countries and is currently the supervising dietitian for Malawi's first dietetics training program based at the Lilongwe University of Agriculture and Natural Resources and is supported by the Innovation Lab for Nutrition. Sanele is responsible for teaching graduate classes in medical nutrition therapy, nutrition counseling and behavior change, and mentoring students through clinical internships. In addition she provides technical support to the government of Malawi on recruitment and deployment of dietitians and on clinical nutrition guidelines and protocol development. Sanele has taken lead roles in the development of credentialing requirements, standards of practice, and education for registered dietitians in Zimbabwe and Malawi. She has over eight years of experience working in very various clinical settings, including public and private health care in Malawi, Zimbabwe, and South Africa. Sanele will begin by giving a brief overview of the Nutrition Innovation Lab before introducing today's speakers and panelists. Finally over to you.

Sanele Nkomani

Thank you Katie. It is our pleasure to welcome you to this series of webinars that we've been hosting on a monthly basis now for the last few months, which are showcasing some great research and the work done by the nutrition innovation lab and its affiliates. I will kick off with a very brief description of

the innovation lab by showing you where we are and what we do. The map on your screen shows some of the work that we do that spread across 14 countries and fought in Africa and South Asia mostly. Our core business is supporting research and capacity building that enables us to understand critical questions linking agriculture, nutrition, and health. The focus of today's webinar is on work in Malawi, where we are mostly involved in human and institutional capacity-building. We will focus on the importance, development, and the application of the Malawi's first food composition table. We do do other work in Malawi. We do other nutrition capacity building work, the first one being the development and implementation of the first dietetics program and reviewing and enhancing the nutrition content of the the medical curriculum. For more details please on our research and our webinars as well, please visit our website thenutritioninnovationlab.org

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Over the years of existence the innovation lab has collaborated with a host of global and local partners in countries where we're active, and I would like to recognize and thank all of our partners for contributing to our many successes. Thank you

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Also I would like to recognize [sound cut] and the mission office in Malawi have been instrumental.

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For this activity, we've also had a few global and local collaborators who we would like to acknowledge and thank for their contribution

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It is now my pleasure to introduce our main speakers and panelists for today's webinar. Starting with our first speaker who's Dr. Averalda Van Graan, who is a research manager for the South African food data systems, known as SZ Foods, which is part of the South African Medical Research Council. She has held this position for over six years and was, prior to this, in academia for 13 years with appointments at the Northwest University and Western Cape University, both in South Africa. She holds an extraordinary appointment at the University of Stellenbosch and she is a seasoned researcher with several publications under her belt. Secondly, Mr. Stevier Kaiyatsa is an economist at the Ministry of Economic Planning and Development in Malawi, and he holds a Master's degree in Agricultural and Applied Economics, jointly from LUANAR and the University of Pretoria. His research is focused on cost of nutritious diets and diet diversity. He also focuses on technology adoption, market access, land rental markets, agricultural commercialization, and impact assessments. Our third speaker is Kate Schneider, who is a PhD candidate in the food policy and applied nutrition program with the Friedman School at Tufts University. Her work focuses on food policy and economics related to poverty, nutrition, and welfare outcomes. She has spent most of the last four years working in and with partners and data from Malawi, and prior to this, she came to us from the Bill and Melinda Gates Foundation, where she has over five years of experience as a program officer in agricultural development. She worked in a wide range of issues, including gender, food systems, food systems, nutrition, and environmental sustainability. Our final speaker is Dr. William A. Masters, who is an investigator for the Innovation Lab for Nutrition and a Professor at the Friedman School, with a secondary appointment in the Department of Economics and at Tufts. He served for three years as chair of the Friedman School's Department of Food and Nutrition Policy, and before coming to Tufts, was a faculty member at Purdue University, the University of Zimbabwe, Harvard's Kennedy School of Government, and the Columbia University. With that, I also want to introduce our esteemed panelist Dr. Felix P. Phiri is the director of

the Department of Nutrition, HIV and AIDS. He is really at the helm of Malawian national nutrition response, where he has spearheaded the development of several national policies and guiding documents that include the Multi-Sector National Nutrition Policy and Strategy, and other guiding documents on education, and communication, with nutrition, agriculture and nutrition, and maternal and infant and young child feeding. D. Phiri has led in the creation and filling of multiple nutrition posts in over in all of 28 Malawi's districts. He's also been very responsible for increasing nutrition funding in the country. Globally, he's a member of the SUN, executive member... committee sorry, and he recently obtained his PhD from the University of Nottingham, and has published papers on selenium and zinc. Finally, I would like to introduce Dr. Agnes Mwangwela, who is a food scientist with over 20 years of experience in university teaching at LUANAR, and she has served as the Dean of the of the of the Faculty of Food and Human Sciences at LUANAR, and is currently the acting principal at Bunda College. Dr. Mwangwela is a holder a PhD in food science from the University of Pretoria, and she has led in the food composition data compilation management in Malawi. Agnes is available today to answer questions during the Q&A session. Thank you very much for evading yourself Dr. Mwangwela. Over to you Averalda to kick off the webinar.

Averalda Van Graan

Thank you so much Sanele for the kind introduction of everyone. Good afternoon ladies and gentlemen, or should I rather say good day as people are joining us by webinar. Thank you also to all the organizers for the opportunity to present our work on behalf of our whole research team, titled *Reflecting on the development and establishment of a food composition database and system for Malawi from scoping to publication and beyond*

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Just a brief outline of my presentation. Looking at the project process up until publication, and then before concluding highlighting some reflections on the challenges and the highlights during the process

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This worldwide pandemic has brought with it many challenges, a refocus ... renewed focus on health and nutrition. Titles carried in popular publications includes the *Latest Trends In Immunity Boosting What Works And What Doesn't ; Want to Boost Your Immune System? A Healthy Diet An Important Start, 10 Ways To Boost Your Immune System In Times Of COVID*, to name but a few. One of these articles specifically reports that according to Google trends data, searches for the combined terms of food and immune system skyrocketed by between February and March this year alone.

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Thus information about content of food and food composition has become very relevant with buzzwords like functional foods, and immune-nutrients, focusing that not all foods are created equal, especially if you look it from a nutrient component and contain perspective. Even within one food item, food composition can vary in foods due to climate differences, soil type differences, what season of the year it is, maturity, biodiversity, and also how a food is stored, processed, and then also influencing by a country's fortification policies and guidelines. And all these factors highlight the importance of a relevant reliable country specific full composition database

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Such a database does become very crucial if you want to address nutrition concerns, whether you do it by means of nutrition practice and research, through program implementation, community-based strategies, policy, and nutrition surveillance. And it's against this backdrop and in the absence of a full composition database in the country the collaboration was initiated to establish a food composition database for Malawi

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This illustrates the process that we followed in the development of the Malawian food composition database. It was a phased approach. Phase I looking at the scoping of the nutrition landscape in the country. Phase II involves capacity-building and data collection. Phase III, data compilation, data quality assurance, and checking. And Phase IV looked at sustainability, the publication of the database, and the dissemination thereof.

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As mentioned, Phase I involved scoping and that was done to assist the nutrition landscape of the country, specifically looking at the nutritional concerns and policy in the country, policies in the country, which nutritional activities and research what was done, who were the key stakeholders in the nutrition fraternity, were there possible data generators, and who would be possible data users in the country. Also focusing on whether there were possible full composition data already and any compilation activities taking place. And all of this was done via desktop research first. And all the data or information was stored in an electronic repository, which formed background information to the following steps of the project.

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The initial scoping mission and follow-up visits were done by means of interviews, meetings, and visits that were paid to academic institutions and different departments within these institutions, research centers, governmental ministries, bureau of standards, international agencies, food composition, sorry, companies and producers. We also attended a national stakeholder meeting hospital, located local markets, and food stores. All this information then culminated in a scoping report where we highlighted strengths, weaknesses, opportunities, and threats. And this scoping report then guided and informed the subsequent phases of the project.

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Just a few pictures highlighting activities of the scoping mission. You can see local markets, food stores laboratories and also picture of the high level stakeholder meeting that took place... that we took part in.

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This I led a project plan which was the implementation working document where we recorded all activities that were to take place, also setting ourselves some time frames, which of the research partners were responsible for which activity, detailed what... which actions were required, and also progressing, recording progress to date of the project.

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So first, to start with was a capacity development process whereby we recruited a in-country food composition compiler, Mrs. Talita Muswangri was appointed as the in-house compiler for Malawi. She also holds nutrition and food science degree, and she's currently based at LUANAR, under the leadership of Dr. Agnes Mwangwela. In addition to a degree, she underwent the FAO/INFOODS e-learning course on full composition data, and also an experiential learning was achieved with two visits of two weeks each to our unit at the offices of the South African Medical Research Council.

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Of course the biggest part of Phase II was the next step, which involved data collection whereby scientific literature was searched by databases. Both published and unpublished data was searched. All this information was added to the e-repository, but also it involved physical visits to libraries of academic institutions and research centers. We also paid visits to the postgrads supervisors offices, where we found stacks of dissertations and thesis in their offices. So the data collection was guided by a priority food list, which was compiled by Master students. I'm talking a food composition data course at LUANAR University, also guided by literature looking at dietary intake surveys and dietary patterns in Malawi. Then they identified food item, information was sourced via additional information through established nutritional platforms in the country.

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Just the example of the priority food list to show this is one page of what guided the data collection process.

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Phase III involved the largest part of the of the project, which is data compilation, and of stakeholder engagements, the decision was made that the food groups would be compiled using the ministry of health's guideline, with the addition of a miscellaneous group that's eight food groups: staples, legumes, animal foods, vegetables, fruits, fats and oils, and baby foods.

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Before the compilation activity actually started the compilation team evaluated and adapted a data quality assessment tool, which we have used to assist the quality of all the data. So looking at the compilation activities, the data evaluation mentioned here was done by means of this data quality assessment tool. Data then was extracted and compiled. Standard guiding methodologies and principles were used, always adhering to quality assurance and data checking was done before publication, as guided by FAO and INFOODS. In addition to the data checking, there was a data in interrogation that took place and some of that work would follow in the next presentations.

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Just some pictures. I think not many enough to showcase the painstaking many plenty hours that the team literally sat with extracting information, double checking numbers, and just recent pictures to show that that was the toast on a very warm summer's day in Malawi when we did our last quality data check. Thank you.

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So Phase IV involved sustainability. Stakeholder engagements took place to identify a custodian where the ... where the food composition activity could be institutionalized. The decision was made that it would be housed at the Department of Nutrition, HIV and AIDS, and a subsequent two-day visit to the South African Medical Research Council took place, where we showcased the requirements for hosting a national food composition database. This then resulted subsequently in a stakeholder meeting of key role players, this is now in Malawi, to establish, to lobby and establish support for the DNHA activity and the decision was that existing platforms would be utilized.

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Thus to summarize the sustainability of the project, the decision was that the overall management would be done by the DNHA, that updates of the database would be responsibility of the government of Malawi and other research institutions under the technical leadership of LUANAR University, that the country's policy advisory team would act as an advisory body to the activity, and that the Nutrition Research Surveillance Technical Working Group under the operation of the National Nutrition Committee would be responsible for the implementation and operational support of the activity.

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Then finally, the publication and the launch of the tables and database, there was a dissemination event held on 24 February 2020 in Lilongwe, Malawi, just before COVID really hit Africa. And this was housed by the government of Malawi, more specific, Ministry of Health. The activity was attended by high-ranking official ... officials of the government. The dissemination event was followed by a two-day workshop where data generation ... generators joined us for a data quality workshop. So the final publication is currently to open access document, which can be downloaded from Tufts University and the Nutrition Innovation Lab websites, and it will also be hosted on the AFROFOODS website

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So just to summarize, the current data tables comprise 318 food items, eight food groups, 42 food components or nutrients, 63% of the data in the Malawian database comes from the scientific literature collected from Malawi, 30% from South Africa, and the smallest contributor, one percent from Mozambique. The largest food groups in the database currently - baby foods – 27%, followed by staples... makes up 22% of the database, the smallest contributor, 2 percent is that from the fat and oils group. Thank you.

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So just reflecting on the challenges we faced during the project specifically looking at resources, if we look at facilities for analysis... chemical analysis in the country who are not optimal if you don't think of the number that were available. In capacity, we also thought that they were not sufficient capacity from a broad analysis network perspective. The next challenge I think is the one that everybody in food composition faces is that funding is always a challenge. I'm specifically looking at the cost perspective for chemical analysis of food items, more over the fact if you have to analyze for a whole database, it becomes quite costly. If we think of many government departments and all institutions, the fragmentation where different departments work in silos, where in fact there could be interrelationship and working together, that was ... could also... we've seen as one of the challenges. One that we also still sometimes face is private-public partnerships. We find that some of the food producers were not as forthcoming as promised, and this always involves a lot of relationship-building. The fact that with few scientific and literature and analytical data for the composition tables of course lead ... it was specific ... not specific for food composition, per se, means that a lot of the values... we have missing data. For

instance that selenium has over 70 percent of our values for selenium is missing. Then another challenge was data quality. We actually looked at many different literature and different articles that we actually could not use due to the data quality as it was not fit for food composition, per se, thank you.

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Then just reflecting on the highlight, I think one of the bigger highlights is the fact that we had more highlights than challenges. From the onset there was a positive excitement around the activity. Also very key was the political will that we saw from the Malawian Government, more particularly the Department of Health and all their other stakeholders and agencies. The team that actually work... research team and the compilation team ... were very dedicated, definitely one of the best team to do such an activity of establishing a composition database. The fact that it was multi-sectoral involvement. Looking at background information for the scoping mission, there was ample information. Malawi has a more recent food composition, a food dietary intake assessment, and national studies than South Africa. There were established organized nutrition networks and nutrition monitoring platforms within the country. There were well equipped laboratories, even though they were not many. Many activities that could feed into food composition were identified. There was a rich wealth of food composition literature as 68% percent of the database comprised Malawian data, the willingness to share information, also the fact that we used a phased approach that could highlight the next steps of the project. And I think the biggest highlight is the fact that food composition activity is continuing. Speaking to the in-country compiler she said "of course just like in everybody's case, COVID has a little bit amended the plans for the year' but that their activity is still continuing in the country.

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So to conclude, we think bold strides have been made in establishing the Malawian food data system, now called MAFOODS, and that the multinational collaborative project harnessing existing networks and platforms, and also enabling multi-sectoral engagement and participation into the successful publication of the Tables and the Database, moreover leaving... a leading to a sustainable food composition activities within the country.

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Thank you

Just the last references. Thank you so much.

[Stevier Kaiyatsa](#)

Hello everyone thanks for joining our webinar. So I'm Stevier Kaiyatsa. I'll be joined by Kate and Will.

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Yes, so food composition data pays a great price in policy analysis. So one of the priorities in Malawi's industrial policy is to enhance evidence-based programming through nutrition, monitoring, evaluation, research and surveillance. So we use food composition data if want to estimate or understand nutrient adequacy of actual household diets.

So what we do know is that food sharing is common among rural households, where household members eat the same food in proportions. So we use food composition data if you want to know the level of diet quality that meets the needs of every individual member of your household, which is determined on a nutrient basis per household member. So for this we use a household consumption

survey data. So the National Statistics Office of Malawi collects this data nationally which is a representative at intervals of three to five years. So we merge household reported food cost consumption to food composition data, and then compute individuals share of the household total and compare it to nutrient requirements. So what we also do know is that households complement their food consumption from own production with food purchases. So we also use food composition data if we want to estimate affordability of adequate diets, trying to understand whether the rural markets can fill the nutrient gaps in household diets. So for this, we use national consumer price index data that National Statistics Office collects across [] on a monthly basis to monitor consumer prices

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So, this chart illustrates the value of local food composition data by comparing the nutrient values for commonly consumed foods from Malawi and the US. So when local food composition data are not available, it's common practice for analysis to like to use data from the USDA. So the reason is that... this is not the database which is one of the most comprehensive in the world, however the nutrient values reflect the foods commonly eaten in the US, reflecting the US growing conditions and the conditions that passes our important foods come from. However those may not reflect the same environment and soil conditions, management practices, or common varieties as in Malawi. Moreover, all those factors affect the nutrient composition of the edible portions of foods. So in the chart, the blue cells indicate nutrients in marine foods per 100 gram edible portion is higher in the Malawi than in the USDA database. And the registers indicate that the nutrients are in lower levels. So using the USDA food composition data for analysis in Malawi would likely lead us to different possibly erroneous conclusions. So when we compare the nutrients in marine foods to those recorded in the US per 100 gram portion, we see a lot of variation but not necessarily a clear pattern. For example a hundred grams of the edible portion of boiled eggs in Malawi are higher in iron, but lower in copper and selenium. Fresh milk is higher in iron, boiled cow peas are higher in protein but lower in vitamin A. We also have some missing values in the white, cells because we couldn't we could not ascertain their nutrients.

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So having a food composition database allowed us to match food composition with several other data sources and answer important questions for food and nutrition policy in Malawi for more accuracy than would have been possible previously. So we use the Malawi's food composition database to assess the quality of foods consumed by households observed in the nationally representative household panel survey data that was collected in 2013 2016/7 by the National Statistic Office together with the World Bank. We also used other data from the NSO, the nutrient food price data that ... that NSO used to calculate the CPI, to estimate affordability of nutrient adequate diets. For both of these studies, we matched the data to nutrient requirements from the dietary reference index, and to the reference heights and weights by age and sex from the World Health Organization growth charts. Let me now invite Kate. Thank you

[Kate Schneider](#)

Thanks Stevier. Now, I'm going to present some of the results from two studies that we did on whole households in Malawi. And then I'll turn it over to Will to share some more of our results from other studies. So we used MAFOODS to assess the quality of household diets relative to a benchmark that Stevier described a bit. It's an aggregate household nutrient requirement set at a high enough level of diet quality to meet the combined needs of all the members, and in Malawi like Stevier mentioned and also like many other places in Africa, households customarily eat shared meals. And so the aggregate nutrient requirement that we developed makes sure that the meals are dense enough in each nutrient,

meaning there's a sufficient concentration of the nutrient per unit of energy to meet the needs of the neediest member of the family. So that way each person eating sufficient energy from the shared diet will get enough of each nutrient. So then we assessed how well current observed diets in that household survey data that Stevier was just describing matched up with or aligned to the diet quality that would be required for an adequate shared household diet. So what you see here on the left in this figure is the distribution of nutrient density by nutrient in the diet of Malawian households as observed in 2010, 2013, and 2016-7. And what we found are diets not sufficiently dense in vitamin b12, riboflavin selenium, lipids, and zinc, but we also observed that they're very dense in copper and iron. And these patterns largely reflect diets with few animal source foods, but the minerals are largely a reflection of soil health. And this is something that we wouldn't or might not have discovered had we used food composition data from elsewhere.

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Thank you. And then we disaggregated these analyses by wealth, which is what you see here on the left, and by urban and rural location on the right. And we found very few differences which suggests there are larger patterns throughout the food system rather than certain households lacking access to an adequate diet. Our findings also offer some context to understand the results that were found in a recent micronutrient survey, which took biological samples and assessed nutrient status based on biomarkers... biomarkers, and they found a high prevalence of non-iron deficiency anemia, but low prevalence of iron deficiency anemia, which can be explained in part by the dietary analysis that we've done looking at the high concentration of iron and plant-based foods and a low b 12 and folate concentration in the diet which could explain those patterns of anemia.

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Something else that we did that is a unique contribution of this study and one of the most valuable aspects of having local food composition data, is we looked at the prevalence of diets with excessive concentration of nutrients, above their upper limits. So in this figure, you see the prevalence of nutrient concentrations in the diet that exceed the upper balance for micro ... micro and macronutrients. And so the local food composition was really helpful and particularly in helping us identify these nutrients where excessive concentration in the diets is highly prevalent and might be concerning. And what we observe are diets too dense in carbohydrates, copper, and iron, which reflects in part consumer choices or lack of choices. Those facing food insecurity prioritize meeting their energy needs, and commonly do consume carbohydrate-heavy diets. But a nutrient like copper is imperceptible to a consumer in their food. And so high levels of copper and iron, which in the case of the diets that you see here, are largely coming from plant-based sources those reflect the high mineral content in the soil that's taken up by the plants and deposited in the edible parts. And again this helps us provide some very useful context to findings from the micronutrient survey. High intakes of copper can compete with zinc for binding sites in the gut, which allows the nutrients consumed in the diet to actually be absorbed by the body and so the high copper intakes could in part explain what they found to be a higher prevalence of zinc deficiency, then analysis of dietary intakes would suggest. And as I mentioned previously, the high concentration of iron also helps to explain at least in part why they found a low prevalence of iron deficiency anemia despite what we observed to be very low intakes of animal source foods. It can also possibly be explained by supplementation, but only for certain sub-populations. And lastly before I turn to the next slide, I just want to note that we would caution interpret... interpreting the high prevalence you see here of diets too dense in sodium, because that's most likely explained by a recall error. Some processed foods are available and do supply sodium in Malawi's food system, but these very high results likely reflect what is ... what tends to be a very lumpy purchasing pattern, which means households

purchase some larger amounts and consume it over longer periods of time, but report the amount purchased during the recall period rather than the amount consumed.

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We then estimated the cost of a nutrient adequate diet for those same households whose dietary intakes I was just talking about in the previous slides. And in this study, we focused on the cost of the whole household at that level of diet quality that is dense enough in all nutrients to meet the needs of all members. When we estimated the cost under current food item availability and prices, we found it was not available about 40 percent of the time from 2013 to 2017, meaning that the available foods couldn't be combined at any price to supply the adequate balance of nutrients. And the cost exceeded current food budgets for 70 percent of households and couldn't be afforded by over half, even if spending all of their resources on food. We found riboflavin to be the most expensive nutrient, but selenium to be the nutrient preventing the diet from being feasible at any cost. So what we did was we developed seven realistic policy scenarios that would increase the availability or reduce the cost of foods dense in the nutrients that we found to be insufficiently consumed in diets or those driving the cost or availability of the adequate diet. And then we added an eighth policy scenario reflecting the soil biofortification of maize with selenium, which is an intervention that has undergone successful trials and is under discussion with the government which perhaps, Professor Perry will be talking about in a few minutes. And what we found was that interventions in eggs, fish, dairy, and ground nuts would largely be ineffective. This is what you see here on the chart here showing the percentage decrease in diet cost under each scenario which clearly shows the effectiveness of the maize bio fortification option. So we found it would make it possible to combine a set of available foods to meet all the nutrient requirements for whole households in nearly all months and at half the average cost. And now I will turn it over to Professor will masters to tell you a little bit more about our cost diet findings across Malawi, and in some other countries.

William A. Masters

Yes. So thanks Kate. I think all participants can really tell the depth of work that is possible to do with this kind of data. And I want to share just a few other kinds of projects that we've done. And first of all to recognize the opportunity to collaborate with Stevier from the Ministry of Economics and Planning and Development to get at the policy-relevant questions, that are most important for nutrition policies and programs in the country. And also very close collaboration with the National Statistical Office in Zomba, where through the ministry and through the NSO, you know, we're able to get access to these very rich price data, match them to the nutrient composition through any foods, and then ask these kinds of policy questions that we'll talk about now. So the first picture to share, the slide that you see is complementing the last two slides that Kate showed that concern the least cost diets, if we take the prices from the NSO measured at every one of the 29 market locations where they measure prices with their complete history each month from 2007 to 2016... that's the top right corner of this slide. We compute the least cost diet, the most affordable possible diet, that that Kate was talking about, that would complement the starchy staple the lowest cost one, with the other sources of the essential nutrients which AMA foods has documented in each food item in the proportions that are measured as Averalda shared. So what you see is that comparing Malawi to these other East African countries, the share of starchy staples is actually appreciably larger, so particularly the admarm maze plays a very big role in keeping costs low, but of course that brings this very high level of starch and fiber that Kate referred to as a major inhibitor on nutrient adequate diets. And the other foods around the sort of bronze, yellow colored starchy staple of course complemented by above all ground nuts and some other leguminous beans, but then oils and fats in order to avoid the excess carbohydrates that of course most low-income people cannot afford those high levels of oils fats, let alone the fish in the upper right corner

dominated in the Malawi case by sardines, and the green leafy vegetables that you see, the □ leaves in the top right corner. The overall cost of this diet is about the same in the three countries, around a dollar fifty when converted to US dollars. It's slightly lower in Malawi, because of the very low-cost admark maize, but the key thing is that that does not make a nutritious diet within reach, because to reach nutrition ... nutritional criteria, you would have to complement it with the other foods that are so expensive and reach that 1.50 \$ a day price level.

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What we see as well is a lot of seasonality. So it's important to kind of look at this as a kind of wave. So what you see here is from month to month, over the 29 markets where the NSO is collecting data, every month from 2007 through the end of ... it's actually 2016, there's a typo at the top of that. I'm sorry, no that's correct, December 2016 is correct. You see these waves associated with seasonality. And what we're able to do with this method is take advantage of the MAFOODS data to identify when to meet nutrient requirements households would swap in one food for another to meet their needs at the lowest possible cost. And you see some opportunity for swapping, for switching from one food group to another, but there is no escaping the need for these high cost nutrient-dense, often quite difficult to produce, and market, and deliver at each marketplace foods, and in particular to reach nutrient requirements, notice the very important roles for the animal source foods in the middle, the pink category, and the oils and fats. And you saw which foods those are on the previous slide.

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One of the crucial questions that we're trying to answer with Stevier is to understand how the different marketplaces, each of which around the country has a different infrastructure access, something that we've discussed in a previous Nutrition Innovation Lab webinar, and different kinds of market access, how those alter the degree to which the food system is bringing foods within reach? So clearly this nutrient adequate diet is out of reach currently for most households. So the policy agenda is how to bring it within reach because prices in this context are not just a signal to influence people, they are a barrier that prevents people. So we want to bring that barrier down. What you see here in the vertical axis is that cost of nutrient adequacy, in US dollars, clearly well above the income levels of most households, this is dollars per day per person for a representative adult woman, not the whole household diets, excuse me, and sorry this is the household diet. What you see is along the x-axis the cost of pure subsistence, meaning just from the starchy staple, typically the admark maize, but it could in some markets at some months be other starchy staples. And that in some cases is very, very low, you know, very close to zero. I mean there's very, very low priced, in some markets there might be on a given month available. But in some months, it's quite high. What you see is this very large range in the cost of nutrient adequacy above that cost of caloric adequacy. So if you cast your eye upwards, you see these columns of numbers at each level of stable cost. These markets differ a lot in how expensive are the nutrient-dense foods. Kate has clarified to me in the chat box that indeed this chart shows ... does show the individual results. Thank you.

So next slide please

What you see and Stevier will come back to this now, is a set of bullet points here that I think summarize very well the applicability of this sort of data combined with other data, so really requiring that multi-sectoral, multi-institution collaboration, in this case with the NSO for the price data, as well as with connecting to the household survey data that was shared where, as Kate described, big breakthroughs in understanding the adequacy of current diets. What are the nutrient gaps which are not always detectable through a biomarker or through a simple measure like stunting or wasting, but rather something more systemic in the body, such as a selenium deficiency or the iron and copper interaction, which is extremely difficult to detect. And then we do this cost diet analysis that measures the food

system's ability to deliver those very high cost nutrients in each market location and what would be the cost-effective policies to bridge those gaps, and then think about what kinds of data would guide those next steps, those interventions, the policies, the programs that could fill the gaps. So Stevier, do you want to share anything about utilization here of these results? If not, we could go right back to Katie and the overall discussion. Very helpful, I see lots of activity in the chat box. Thank you very much, and questions in the Q&A as well.

Stevier Kaiyatsa

Thanks, well, yes, I just want to add, to say that the government is the best investment in Malawi has been on subsidizing mass production. So understanding the cost of nutrients would enable the government to develop policies and programs that would increase access to indigenous nutritious diets to achieve its vision of a well-knowledge profession that would effectively contribute to the social and economic growth of the country. Thank you, Will.

William A. Masters

Thanks, I think we have a terrific panel of people to make further comments. So Sanele, this would be back to you. I don't know if you can hear me?

Sanele Nkomani

Yes, I'm right here. I was just waiting for everyone to make their final comments, but I would like to pass it over to Dr. Felix Phiri who will give some remarks from the perspective of government. Dr. Phiri?

Felix P. Phiri

Hello Sanele. How are you? Good morning, afternoon, evening, everyone. Yes do you want me to give the perspective on the previous speaker or I mean

Sanele Nkomani

You're certainly welcome to um you're certainly welcome to give perspective on the previous speaker, but you ...you could also do what you had planned to...

Felix P. Phiri

Ok, I think probably ... I'll just probably give the whole generic on the work that has been presented here, on how government had been involved, and also how it intends to take it forward, since this is a very complex thing and it requires a lot of commitment from government. So one of the things which I could say, which I find it to be very important and valuable, is the engagement that we had with the team that was leading this process. We'd been working with them from the onset of their program up to the end, and personally I think I had also visited South Africa just to see how they are managing the program at the South African Medical Council. So we had to go and learn, so that as we are moving forward with this, we also have an idea on how we can sustain it. So the other thing which probably I also want to share is that in terms of looking at this whole thing, I think the most important thing is how countries could sustain it, and how they took it. So one of the critical decisions that the government made in Malawi was now to identify a house where this could be sitting in. So to implement the program ... this whole thing would be sitting in the Department of Nutrition in the Ministry of Health, and then we'll be working closely with the Ministry of Agriculture as we are moving forward and as was relatively

reported we also have a police advisory team, which will be providing technical support and other things. The other thing which also we have committed to do as part of the ... as part of the long-term solution is that in our food and nutrition Bill, we had proposed to have the National Food and Nutrition Council. So in the National Food and Nutrition Council, we are going to set up a department that would be managing the food composition table and this would be... we'd have officers dedicated to do this work, because the way we thought ...why we had to use the national food... national nutrition council once the bureau has been approved, because this would be the council which would be under the act [] so it will be sitting in there, and at the same time because we are looking at the whole thing as much sector in nature... so sitting in there it means it would be easier now to be accessed by so many partners, and they also have a lot of influence in terms of implementation. Now coming back to having the food composition table, now the question one could ask is: what is Malawi doing? How are we using it? So what one probably wants to share in terms of at different levels on how we have been using it and how we intend to use it? The first layer is now at policy level. What we are doing now at quality level based on the results, because these are local results. We want to develop guidelines, especially on management of NCDs and those guidelines would be using the food composition table to make certain recommendations. And that process has already started. And the second thing we want also to do is to develop food-based dietary guidelines for Malawians. Now this is looking at the general population and we are also trying now looking at what could we do looking at considering that our levels of malnutrition are high? So we want to you will be using this to develop complementary feeding guidelines unless [] which would be age-specific. So from the policy point of view, we thought doing that it means we are also dealing with the challenges that we have as a country, especially looking at the table building where we are talking of non-communicable diseases as well as under nutrition and over nutrition. Then it has also helped us to guide us in terms of identifying the nutritious foods, which could be promoted using our behavior change and communication strategy. So we are able to identify which foods could we be able to promote and also basing on seasonality of the foods in and across different regions. Then, we are also looking at developing counseling materials for various demographic groups that will be able to improve their nutritional status, especially we are looking at the adolescents in this case. Then at research level what we have seen that people have already started using the food composition data, especially the academia and students. Most of them they have been using it, but all in all, we have also been working with the Bill and Melinda Gates project, which is actually doing the micronutrient action policy support. So this project is using this data and it's a project which would generate a lot of information that would probably inform our country in terms of micronutrient deficiencies. Then we have also seen that dietitians and nutritionists have also been using this, especially doing their plan for their own as well as []. At operational level, we'll be using the food composition table, especially guiding us in terms of meal prep preparations and also combinations of food, as we are aiming at improving nutritional status of the vulnerable groups. We have also been using this in our chats, especially the ones which we are working with the care groups at community level. And then we also want to use the same in promotion of local foods that have been identified in those, and how those could be promoted and then scaled up based on seasonality. But I want also to mention here to say in as much as we are doing this, I think I from government, I also see that there's potential challenges that we are anticipating to have, especially once we have taken full ownership of this. One of the things which I foresee that we may have a lot of challenges is on capacity issues, especially on financial as well as technical, because this would depend on government financing. Then secondly, the people who are going to manage this they need a lot of training, and they need also... we may need to have other specialized officers who should do this. So those are the potential probably challenges that we anticipate, but however we are hopeful that through government we are going to train a few officers at Masters and PhD level. We should have adequate capacity to do this. I can stop there. If there will be questions, I'm happy to respond. Thank you, over to you Sanele.

Sanele Nkomani

Thank you very much for the insightful presentations and also for your panel discussion there, Dr. Phiri. Just following on ... on what you were just talking about Dr. Phiri, I would like to ask a question perhaps to Averalda, and this question is from B. Rogers, and she asks whether you can talk about the specific activities that are involved in hosting the database. So what level of updating or adding of the data do we need to do and what other activities do we need to do to keep that the database up to date and sustained?

Felix P. Phiri

Thank you, Sanele, thank you for the question. I think most probably Dr. Phiri would be a better person to answer the question, but from our side is that, as he has explained, such an activity was not present in Malawi. So if we're talking about hosting the activities, as he explained, is that it really does take resources, so you would need people that need to be paid a salary, they would need offices, and of course also these people need to engage what the nutrition landscape look like. What are the needs of the country, but also to start from what the current database offers, and where the missing information is, then of course to get a team together to source funding, and that is usually the bigger obstacle for the process, because it's very costly. And also hosting a national database involves quite a bit because the core function of this activity now being more foods would be to maintain and update the database. And as Felix has explained, that there might be later need more people to assist the current compiler, and also then let's say a specific place where they can be housed, and of course getting resources for the additional updates that need to follow. I hope it answers your question.

Sanele Nkomani

Thank you. Felix, do you have anything to add? I think... I mean, I know you gave quite a nice overview of what is needed, but this is more specific activities.

Felix P. Phiri

Ok. I think Sanele, what I could say probably, I think for some of the routine staff like offices, salaries, and all that, probably those could be taken up because it would be part of the institutional arrangement within the either DNHA or within the National Nutrition Council. So that would have no problem at all. But the key issue here is how do we manage this? It's the actual management of this. We will need a lot of capacity to build, so that we would be able to manage this and also sustain the whole thing. We may have in terms of technical support from LUANAR and all that, but at the same time, the capacity has to be built within the system, within the institution which is hosting the system. I think that's where probably I would say we may need to figure out on how best it is could be. But suffice to say it's about our commitment ... about government commitment and how this could be taken up. But the good thing is that the whole process involved the highest office in within the Ministry, so they are already aware of what it takes for us to move forward. So I think that's what I would say. Thank you over to you.

Sanele

Thank you. We've just had a question in from Don, which is asking about the role that the Malawi standards of... the Standards Bureau or regulatory monitoring have played in the food composition table development and adjustments? I'm not sure, should I give it to either Agnes or Alvarelda, depending on who's more comfortable.

Averalda Van Graan

I can take the question. We visited... because there are a few standards already published in Malawi, so we visited this Bureau of Standards just to be aware of the standards that are published in in the

country, and of course they were very welcome to share that with us, even though we had to pay for some of it. Yes, so that was the background information also needed to make sure that we have all the information going forward.

Sanele Nkomani

Thanks. The next question, I'll just move on is from Naveen and I will address this to Dr. Mwangwela just to Agnes and she says: in many countries, the food composition tables developed based on regular analysis of in government laboratories and that's mostly released by a government institution of concern, how do the proposed approach ... this approach I suppose... is diff ... how is it different rather than the general practice that many government follows? So how is the approach that we used different? I think that's what she means.

Sanele Nkomani

But, thank you very much Sanele. Our approach was different in that we did not use primary research data that was specifically analyzed for the food composition database. Rather we used already published data and that data was compiled to form the database. So that's the difference. And it's also an approach ... that is also well acceptable and used in other countries as well to use the secondary data of existing published articles. Thank you.

Sanele Nkomani

Thank you, thank you very much. This next question is directed to Will Masters. How would this affordability challenge look like under the EAT-Lancet Planetary Diet. This is from Ahmed.

William A. Masters

Yes, that's a great question, and it echoes actually what Dr. Phiri was just saying about Malawi needing to develop their own uh food-based dietary guidelines. When you look at those food-based dietary guidelines whether it's EAT-Lancet or the ones that are created by national governments, they do call for quite a lot nicer diets, more expensive with more of the high cost uh nutrient dense foods, than the ones that are just meeting nutrient requirements. So the data that we've shared are really a lower bound on a healthy diet, so that healthy and sustainable EAT-Lancet pattern is much more expensive, more like three dollars, between three and four dollars, sometimes five dollars a day as opposed to 1.50 \$ in a setting where people are actually spending in US dollar terms perhaps, less than a dollar.

Sanele Nkomani

Thank you so much. And I think by that you've also answered a question that that came up through Naveen. So I'll move back to the development of the food composition table itself. And Natsuku is asking: why separate baby foods from other food groups and then she also asks: Since the Phase I started how many years, does it take to publish the FCT in total? This can go to Agnes or Averalda.

Averalda Van Graan

Ok, I'll take the question, Agnes if it's okay with you because I've got the helicopter noises at the back, I don't know if everybody can hear me. Yes, [] included specifically after having stakeholder engagement with a lot of nutritionists working on ground grassroots level said that that such information do ... was very important because of the malnutrition rates in the country, and that they would want to see a separate baby food group. That's why baby foods were included. And now I forgot the second question sorry Sanele.

Sanele Nkomani

The second question was... I've lost it too. How long did it take?

Averalda Van Graan

Probably from the scoping mission to February just under four years.

Sanele Nkomani

Okay, yes, thank you. This next question is coming from Daniel Pfaff, and I think it's directed to Kate: which factors did you use to adjust for bioavailability for the minerals and did you use the retention and waste factors?

Kate Schneider

That's a great question. Yes, sure. When we assessed the quality of observed diets, we adjusted for bioavailability using the FAO based assumptions for iron and zinc of a low bioavailability dietary pattern, which are 10% and 22% for iron and zinc fractional absorption, respectively. And then for retention factors, we unfortunately... we did have to use USDA for that, but retention factors reflect the extent of the food item that is the edible portion or the percent that's not the edible portion, which is more likely to be consistent across countries than something like the actual nutrient composition.

Sanele Nkomani

Thank you I think we're getting quite a lot of technical questions so I'll refer them back to either Agnes or Averalda again. But someone is asking, Ruth is asking: how do you rate the analytical data from Malawi, so how did you rate that, that data?

Averalda Van Graan

Yes and sorry Sanele. We, as mentioned, we looked at different data quality assessment tools and more specifically, we thought that we used the EUROFOOD one. So we have added I think one or two additional factors to the two, and that is what we used. So looking at key issues like an analytical method, how many samples were analyzed, what type of product has it been described, well so let's say we looked at quite a few data quality assessment tools, but basically worked from the EUROFOOD one, and that is what we have used to assess the quality of the literature to include or not.

Sanele Nkomani

Thank you one of the final few questions that is there is from Ann and she's asking what the level of involvement from the Ministry of Agriculture was in the development phase and what role has

agricultural soil science, soil map, soil mapping play in improving nutrition in Malawi? So, these are two questions perhaps we could speak at Dr. Phiri or Agnes to explain up the role that the Ministry of Agriculture had and then perhaps I'll move on to either Stevier or Kate on the... on the ... role that agriculture has and soil science has in improving nutrition in Malawi. So, let's start with the Ministry of Agriculture's role.

Agnes Mwangwela

Thank you very much Sanele. As I'd rather mention the process included a lot of stakeholder consultations and the Ministry of Agriculture is represented in the technical working groups that the Department of Nutrition is involved in. So the Ministry of Agriculture was involved at technical working group and their policy advisory team level in terms of advising and providing feedback in the development process. Thank you.

Sanele Nkomani

Thank you. Kate do you want to take the question about the role of agricultural, soil science, and mapping on improving nutrition. This is specific to Malawi but I guess it can be generic, yes.

Kate Schneider

Yes, and I'll say I'm not an expert in any of those things, but I can respond a little bit to... I think this comes back to what is the story for selenium here in Malawi. And there have been some other questions in the chat that have asked how can we draw the conclusions that I came to about the cost and the potential effectiveness of the selenium biofortification, when the food composition has little selenium data for many types of food and I think this is where the value of combining multiple data sources is really useful. So I will say Dr. Phiri is the person on this call, who really is the expert here. So I will turn to him in a second. But what I would like to say first is that the micronutrient survey did observe very high prevalence of selenium status deficiency. So this to me says that yes the food composition data may be missing for selenium, for many foods, but most likely the food system does not have a whole lot of selenium throughout it, otherwise we wouldn't see manifestation of such deficiency in humans. And so when we think about addressing that deficiency, this would call for uh nutrition-specific interventions when you're talking about a single nutrient, those are the interventions that address the immediate causes of that malnutrition, so something like fortification. And when it comes to selenium, I think, Dr. Phiri and others have found that doing that through soil is actually the most cost-effective way to fortify selenium into the food system. And maybe with that I will turn over to Dr. Perry if he wants to say a little bit about that. Dr. Phiri? Dr Phiri? We might have lost him but I will share their papers in the chat for those who are interested. There's a large team working on a project called Geonutrition and they've been doing a lot of this research. Oh it sounds like maybe we have been back. Dr. Phiri? Maybe not. Well, I'll share some of the resources in the chat.

Felix P. Phiri

Hello, hello, hello

Kate Schneider

Yes we can hear you.

Felix P. Phiri

Yes, yes, I think I got lost. I was not here. I couldn't hear anything. So I don't know what was...

Sanele Nkomani

Ok, so we were asking a question about the role of agriculture, soil science, and soil mapping in improving nutrition in Malawi. So Kate did give us quite a nice intro, but she intimated that this was your area of expertise, which you might want to have some input in.

Felix P. Phiri

Ok, not necessarily in terms of soil and they have mapping and all that. I don't know, probably Dr. Mangwela who could ever respond to that.

Mangwela

Yes, I think what I can say is I know our Department here is implementing a project, the Geonutrition project that Kate mentioned, and they are exploring possibilities, including selenium and fertilizers and see how it would affect, for example, the selenium status of maize that is grown with soils that have been fertilized with selenium. So it's an ongoing work and they are thinking ... we may see the results in the immediate future. Thank you.

Sanele Nkomani

Thank you.

Kate Schneider

I'm just going to add one more thing too that. I would say not being an expert here, but I think it's a really useful thing to keep in mind... is that soil composition differs from inch to inch, and so having really locally specific soil nutrient composition data is very useful for both agriculture and human health to understand the distribution of minerals, particularly the nutrients where what ends up in the edible portion of the food is particularly influenced by the composition of the soil. And there are some other projects that are also doing very granular level soil mapping that could potentially be one of the ways in which additional data could be used to triangulate what is the situation in the soil, what's manifesting in the foods, and what's ending up in human bodies and as health outcomes. And so I would also point everyone to the Access project which is providing very highly detailed soil maps soil health across Africa, I believe.

Sanele Nkomani

Ok, thank you, thank you so much, Kate. And the very last question we can take before I put it over to the speakers and panel to give their final parting shots, is about data quality. So Junior's asking that data quality including missing data was clearly a challenge from the onset. How do we plan to ensure ongoing data quality assessment for error detection, monitoring, and remediation now that the data has been compiled? We can take Averalda I guess for this, and then we can also maybe have some input from Dr. Perry.

Averalda Van Graan

Yes thank you, Sanele, yes. As mentioned one of the major challenges was that the data that we have used was from published scientific literature not specifically geared for food composition... for the food composition tables and database, and that is ... the result was a large percentage of missing data, and the fact that we haven't compiled or imputed data was that we were not comfortable, because a lot of the Malawian data is ... or food items differed from other sources. We have... while we were busy compiling the information, we had already started to write proposals for follow-on development for analysis up until the completion of, let's say, this Phase I one of the project, we were not successful. So one of the main aims, of course, is to source funding to address these gaps in the data. And of also of course, to increase the number of values food items within the database. But yes, I think Felix would be perhaps an apt person on let's say source funding as going.

Sanele Nkomani

Ok, thank you. We actually have a bit more time. We've got about three four minutes for more questions, so I'm just going to comb through the questions, also perhaps...

Averalda Van Graan

Sorry Sanele...

Sanele Nkomani

Yes, go on.

Averalda Van Graan

So, Agnes would also be perhaps a better person being let's say the technical PI of the project on where they are with the updates of the database.

Sanele Nkomani

Sure, Agnes do you have any input?

Agnes Mwangwela

Yes, I think what I can also say is that when we observed the challenge with data quality, we also had some training sessions for data generators. So we brought in students from the different university campuses, and laboratory technicians who underwent the a two-day training on the data quality for data generation to be included in a phone composition database, and we believe that with that, it will help so that future work that is generating data can be of better quality. But we are also exploring, as Averalda has indicated. So for the gaps that we have observed we are also looking for funding and the resources to be able to use collect data that will help us to fill in the gaps in the database. Thank you.

Sanele Nkomani

Thank you. A few more technical questions here. So there is one about the data management system that was used during compilation, and also about the sources of the literature. So, was it journals or you know what were the sources of data for this ... for the for the composition table?

Averalda Van Graan

Yes, Sanele. Now I need to remember, the management system is and we use the same management system that we're currently using in Stafford, so it is a bold management system based on Excel and that is the one that we've used in Malawi as well. The second question was on the ... that one I forgot now again.

Sanele Nkomani

Oh, the second question was on ... sorry ... oh the data sources, so what sources of data were they using?

Averalda Van Graan

Yes, we... as mentioned, we search databases for published information or scientific papers, but also not just that, we also looked for unpublished papers. Then a lot of the data was actually sourced from library visits to the two universities, looking at dissertations, and theses, and also as mentioned quite a few were found in, let's say, promoter and supervisor offices. So, it was postgrad research was also a large contributor to the data that we could use.

Sanele Nkomani

Ok, I think with that that is probably the last questions that we could take. I'm just going to open it up again to the speakers and the panelists, probably starting at the top, with you Averalda, and whether you have any parting shots, a few parting words, quick 20-30 seconds that you would like people to take home with you... with them.

Averalda Van Graan

Yes I think my parting would be as mentioned looking back there were much more highlights than challenges and that countries should go and look at what they have available. I think we underestimate what is available from researchers work within the country, and that would be a good start to look at, if you want to start such a process, that don't underestimate what richness lies within the science and research fraternity. Thank you

Sanele Nkomani

Thank you, Stevier, any parting shots? Any parting words? Are we still with Stevier?

Stevier Kaiyatsa

Yes, no, that's fine. I think you can proceed, I think.

Sanele Nkomani

Ok, thank you. Kate?

Kate Schneider

Sure, I'll just build on what Alverada said, that these locally relevant data are so valuable, there is so much that can be done with what... bringing together research that's already been done which I think makes the most and best use of existing data and then there would be tremendous value in investments ...targeted investments to fill in the gaps. So I think that could make analyses like the ones that we shared even stronger, more policy-relevant and the amount of funding, when all you're doing is filling in the gaps, once all of this tremendous work to bring together what's already there and already done, would be marginal for a huge benefit.

Sanele Nkomani

Next would be Will. Do you have anything, any parting words?

William A. Masters

Just to say I hope there's some immediate actionable information. I think there is. You've heard you know very specific things that people in different settings can do. But those of you who are in a research setting you know, I would say the most amazing thing is how many puzzles there still are. This is just the tip of an iceberg, getting into this interaction between environmental especially soil, nutrients, plant, and animal processes. The resulting food quality and the nutrient composition and then the policy levers, so there's just so much amazing stuff here that these data allow us to begin to look at.

Sanele Nkomani

Thank you so much. Thank you so much for your remarks. Let us end it with the panelists. Dr. Phiri and Dr. Mwangwela, starting with Dr. Phiri.

Felix P. Phiri

All right thank you very much and thanks for the organizers of this. I think what I would say probably at this point is that as we are going forward with the analysis on food composition table, I think it's important that we also do more of local foods, especially in the context of Malawi where you find there's diverse local foods that people consume. So it would be important also to go beyond what we have done and more probably have more of the local foods being analyzed, so that it will inform us in terms of policies and direction. And secondly I think from the discussion that we had here, there is need for agriculture, nutrition, and health platforms to be strengthened, so that we talk to each other, and we are able to inform our... within intersectoral information is being disseminated, so that we are able to come up with something that would benefit the country. For example if we are to improve a nutrient content of certain foods to achieve certain nutrition outcomes, then the agriculture people would be necessary similarly, the health people should also inform. So my view is that this sort of discussions... let's always remember to have this sort of diverse people in the conversations, like this. Thank you, over to you.

Sanele Nkomani

Thank you, I'll pass it straight along to Dr. Mwangwela.

Agnes Mwangwela

Thank you very much Sanele. I think what I can say is that the this first edition of the Malawi Food Composition Database is a starting point, and as we have discussed here, we can notice that there's still quite a lot of work that has to be done to fill in the data gaps, as well as explore other food items. We are having around... we have 300 data entries at this point, but based on the foods that are consumed in the country, there's quite a lot of work that has to be done. So look forward to continuing working only improving the database, so that you can fill in that those gaps and provide more data that can inform policy and decisions in the nutrition sector. Thank you very much.

Sanele Nkomani

Thank you Dr. Mwangwela for those parting shots. I suppose mine is to thank everyone and to end this webinar with just extending my profound thanks to all the speakers and panelists that brought a lot of knowledge, you know, amazing amount of insight into this topic. And for the panel... I mean for the audience too for turning up and asking a lot of insightful questions. Thank you, thank you very much. As we said before, this is not the only webinar that we've been... we've been going on ... has been going. So, there will be upcoming webinars and the next one is on 4 November on your screen title so please do log in. And please do register for the next webinars. You can get the recordings from of this webinar. They will be posted in a few days, just after this webinar, and they will be on the Nutrition Innovation Lab website and the Advancing Nutrition website too. Thank you very much.



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