

FINAL TECHNICAL REPORT

THE MEALS4NCDs PROJECT

Project Title: Measuring the Healthiness of Ghanaian Children's Food Environments to Prevent Obesity and Non-Communicable Diseases

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Lead Research Institution: University of Ghana (UG)

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Collaborating Institutions:

- University of Health and Allied Sciences (UHAS), Ghana
- Ghana Health Service (GHS), Ghana
- African Population and Health Research Center (APHRC), Kenya
- National Research Institute for Sustainable Development (IRD), France
- Academic Medical Center (AMC), University of Amsterdam, Netherlands
- Sciensano Research Institute, Belgium
- University of Toronto, Canada

Project Team

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Executive summary

"The MEALS4NCDs Project" (hereinafter the Project) was birthed to respond to the increasing burden of obesity and nutrition-related non-communicable diseases (NCDs) in Ghana. This is done mainly through the provision of Measurements, Evaluation, Advocacy/Accountability & Leadership Support (MEALS). Accordingly, and motivated by local (Ghana) recognition of the need for interventions to promote healthy diets, and anecdotal evidence indicating a preponderance of misleading marketing of such foods in both private and public-sector settings, the project aimed to generate data that support public sector actions that aim to create healthy food marketing and provision environments.

To accomplish these, the project team deployed multiple research, advocacy, and stakeholder engagement approaches: A Net-Mapping exercise was conducted to generate an "Influence Network Map" of the key actors who are closely engaged with or have influence in food provision and food promotion among children in Ghana; a Community Readiness Model (CRM), assessed community stakeholders' readiness to accept, and their capacity to implement obesity/NCD prevention interventions, adaptation and implementation of Food Provision and Food Promotion Modules of the INFORMAS, among others.

On engagement, the Project has since its inception in March 2019, actively engaged a broad range of stakeholders from government Ministries, Departments and Agencies, Lawmakers, policymakers, programme implementers, civil society organisations, United Nations Agencies (including WHO, UNICEF) based in Ghana, researchers within and outside Africa. The Project has made significant contributions to local capacity to advocate for implementation of food environment promoting interventions in Ghana and the wider African region – through its Africa Food Environment Research Network (FERN).

The Project aspired to, and did contribute to the activation of relevant food environment tools, policies, regulatory, fiscal, and legislative levers toward making unhealthy foods unaffordable and unattractive while making healthy food attractive and affordable. Evidence, insights, and recommendations from the Project motivated and supported the development of the "Healthier Diets 4 Healthy Lives Project", which is currently developing a set of double-duty food-based policies to improve food environments in Ghana.

Following, we summarize the key studies implemented and associated policy and practice implications.

Study 1 assessed the nature and extent of unhealthy foods and non-alcoholic beverage promotion on television. The data from this study motivate/reinforce existing calls to:

- Enact and enforce a legislation regulating the promotion, sponsorship, advertisement and sale of food and drinks with excessive levels of added sugar, salt, and saturated fatty acids/trans-fat in all media and in settings where children frequent
- Compel through a legislation the declaration of all foods company that adverted foods product to declare nutrient composition exceeding the recommended threshold on advertisement and if possible, the associated health effect when consumed.
- Ban food advertisement found to be misleading especially through the usage of inaccurate claims regardless of media platform or venue.

Study 2 mapped all outdoor food advertising and outlets within and around selected basic schools in the Greater Accra region.

Study 3: Assessed the healthiness of outdoor food advertising (identified from studies 1 and 2). Data from the two studies motivate the following policy recommendations.

- Enactment and implementation of zoning laws restricting the siting of unhealthy food adverts (food and drinks with high levels of nutrients of concern (such as sugars, salt, saturated fats, and trans fatty acids) around schools.
- Regulate, the promotion and sponsorship, advertisement and sale of with high levels of nutrients of concern (such as sugars, salt, saturated fats, and trans fatty acids) in school environment and other child-laden settings, enforceable with fine.

Study 4 aimed to answer the question: **How healthy are modern food retail outlets? It presented data on the availability of healthy and discretionary ultra-processed foods in food retail outlets of selected districts in the Greater Accra region. Implications for policy and practice**

- Government in partnership with other stakeholders should institute measures that improve the availability of healthy foods within supermarkets in Ghana.
- Government should also ensure that local authorities are equipped with the requisite resources to monitor unhealthy foods sold in supermarkets.

Study 5 analysed food provisioning policies and programmes in Ghanaian public sector basic schools (PSBS).

Study 6 determined the nutritional quality of foods and beverages sold or provided in child-serving institutions.

The data from these studies motivate the following recommendations:

- Establish and apply strong and comprehensive food-based and/or nutrient-based standards to the Ghana School Feeding Policy and Programme to provide a robust way of ensuring the nutritional quality of meals and beverages.
- Use language that is enforceable in policy documents and include sanctions for non-compliance
- Address food safety and food emergencies in the school food programme.
- Implement policies for regulating sold foods and other competitive foods and beverages within reach to pupils.
- Provide outlets for fresh drinking water and encourage the consumption of water as a replacement for SSBs.
- Provide training to school heads, teachers, catering team, and other school stakeholders to model healthy behaviours.

Study 7: Network Mapping of Stakeholders in Food Promotion and Provisioning among children in schools in Ghana.

Data from this study motivate the following recommendations:

- Promote co-creation and co-actions among identified stakeholders.
- Empower the media with adequate food environment and nutrition information.
- Establish a coordination mechanism for promoting healthier diets in food environment.

Study 8: assessed the readiness of Ghanaians school community stakeholders to implement measures to improve children's food environments in the Greater Accra, and recommended that:

- Measures to improve community knowledge of existing local efforts, and, and to secure resources (e.g. funding) to support efforts
- Efforts should focus on addressing the concerns of community members that might be present as well as misinformation about the potential impacts of various food environment interventions (e.g., concerns about what alternative livelihoods could support owners of local shops selling foods and drinks considered to be unhealthy foods to children).

Academic outcomes

Students and early career researchers have received training throughout the project. One Postdoctoral Fellow, two doctoral students, two masters, and four early career researchers have received mentoring as part of this project. Additionally, a total 37 of research assistants (RAs) who supported the project's field activities, received training on the study protocol, on food environments, data collection tools, ethics and etiquette of field-based research involving humans.

Publications and open access project website.

The MEALS4NCDs study protocol has been published ([here](#)). A second paper on the Food Environment Research Priorities for Africa: Lessons from the Africa Food Environment Research Network (FERN) has been published by Advances in Nutrition and may be accessed using [this link](#)

A third paper articulating the concept of FERN has been accepted for publication by the Global Health Promotion journal.

Three other manuscripts currently undergoing peer-review have been submitted to a Special Issue to be published by Frontier in Public Health.

Thirteen other manuscripts are currently being drafted.

The project website (<https://www.meals4ncds.org/en/>) provides a one-stop shop for all information and outputs of the project.

Advocacy, Health and Social Impact

The project generated a wide range of evidence, which are being used by advocacy groups -Ghana NCD Alliance, Vision for Alternative Development (VALD), Institute of Leadership and Development (INSLA), Ghana Academy of Nutrition and Dietetics (GAND), Coalition of Actors for Public Health Advocacy (CAPHA) - to advocate for the review of policies and guidelines in relevant ministries and local government, and practices among nutrition and health stakeholders.

Policy briefs

Three policy briefs on Food Promotion, Food Provision and Community Readiness were developed from evidence generated from the MEALS4NCDs project. These briefs tailored to policymakers in Ghana suggest policy recommendations relating to the following areas:

- Improving the nutritional quality of sold and provided foods in Ghanaian schools: priority recommendations for policymakers and key stakeholders – Policy Brief.
- Restricting the marketing of unhealthy food to Ghanaian children – Policy Brief.
- How ready are community stakeholders to address marketing and availability of unhealthy foods and drinks in and around basic schools in Greater Accra region? – Policy Brief.

Policy and practice outcomes and the policy bundle project.

The MEALS4NCDs convened, but also partnered with others to convene several consultative meetings. Held in September, 2021, in partnership with the Ministry of Health (MOH), this meeting engaged relevant stakeholders to obtain their inputs and buy-in for the double-duty food-based policy bundle project code-named “Healthier Diets 4 Healthy Lives (HD4HL) Project”. Data from the MEALS4NCDs Project, and other earlier local food environment studies laid the foundation for the HD4HL Project. The project aims to build evidence and mobilize multi-stakeholder actions toward a policy bundle for healthier and more equitable consumer food environments that reduce the double burden of malnutrition in Ghana. The policies in the bundle include front of pack labelling policies, marketing restrictions policies, fiscal policies, and public food procurement policies, all of which will be undergirded by a fit-for-local purpose nutrient profiling model.

The research problem

Improving food environments in Africa is an urgent priority. In recent decades, rapid urbanization, coupled with changes in food environments, has been driving the “nutrition transition” in Africa. Dietary habits of people in Africa are shifting towards less healthy highly processed foods that are high in fat, sugar and salt. This has resulted in increasing rates of obesity and associated nutrition-related non-communicable diseases (NCDs), coexisting with the age-old problem of undernutrition and micronutrient deficiencies. NCDs represent the leading cause of death globally. In 2015, NCDs were responsible for 70% of the world's 56 million deaths that year. In some African countries, NCDs cause over 50% of all reported adult deaths; 44% in Ghana. Ghana is at an advanced stage of nutrition transition, experiencing rapid urbanization, and increasing overweight/obesity and related NCDs. A 2015 survey report indicated that Ghanaian households frequently consumed foods with high content of added sugar, sodium, salted dried fish, and foods processed with salt, foods high in calories, and low frequency of consumption of fruits or vegetables.

Recognizing that an unhealthy food environment is linked with suboptimal dietary behaviour and adverse outcomes, including obesity and nutrition-related NCDs, this Project aimed to measure and support public sector actions designed to create supportive food environments for healthy food choices for everyone, particularly for children/adolescents. The choice of our primary target beneficiaries (children; both male and female aged 17 years or younger) was informed by three considerations – the global rapid rise in overweight/obesity among children and adolescents, calls from existing global public health resolutions, guidelines, and frameworks to tackle food promotion targeting children, and requests from local/Ghanaian policy makers. Improving food environments of children and adolescents has the greatest potential to prevent obesity and NCDs.

Focusing on restricting unhealthy food marketing to children and improving school nutrition environments, the MEALS4NCDs Project aimed to measure food marketing and provision environments of Ghanaian children/adolescents to support public sector actions for obesity and NCDs prevention. The overall aim and specific objectives of the Project remained relevant throughout the implementation period. However, research objective 2 in the original proposal has been elaborated upon, and unpacked into 2 separate objectives. The objectives of this project thus remained to:

- describe the nature and extent of unhealthy foods and beverage promotion on television, in stores, and in and around public sector basic schools;
- describe the nutrition standards or guidelines that are in place to implement specific policies or programmes within public sector basic schools in the Greater Accra region of Ghana;
- evaluate the nutritional quality of foods and beverages sold or provided in child-serving institutions;
- assess community stakeholders’ readiness to accept, and capacity to implement interventions to improve children’s food environments in the Greater Accra region of Ghana

Overall, the project was motivated by the following considerations:

- the global rapid rise in overweight/obesity among children and adolescents;
- calls from existing global public health resolutions, guidelines; and frameworks to tackle food promotion targeting children;
- requests from local/Ghanaian policy makers

In the next section we report on the overall progress of the global project – in relation to its overarching objective and specific objectives.

Progress toward milestones

The MEALS4NCDs project was launched in 2019 in response to the needs outlined in the previous section. The project aimed to generate evidence for advocacy scholar activism and policy. The project adapted approaches developed by the International Network for Food and Obesity NCDs Research Monitoring and Action Support (INFORMAS) to measure, and support public sector actions that create healthy food marketing and provision environments for children and adolescents. Delivered through three interlinked work packages (WPs) over a period of three (3) years, the project realized all of its objectives – as outlined below.

Table 1. The MEALS4NCDs Project Work Plan and Schedule /Time Frame:

Activity/Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	Status
Co-ordination																																											
Pre-project launch conference calls organised by UG																																											Realized
Pre-project launch stakeholder engagements																																											Realized
Obtain Ethical approval from relevant IRBs																																											Realized
Capacity strengthening/INFORMAS protocols adaptation																																											Realized
Project Launch																																											Realized
Face to face project meetings in Ghana																																											2 nd and 3 rd FG not realized due to Covid-19
Post project launch monthly conference calls organised by UG																																											Realized
Benchmarking of food environments																																											
Food Promotion [data generation and analysis]																																											Realized
Food Provision [data generation and analysis]																																											Realized
Dissemination & exploitation																																											
Open access presentation of project reports, and results through the project website																																											Realized
Local dissemination/stakeholder engagement/workshops																																											Realized*; SK, not realized due to Covid-19
Regional, international conferences, and publications																																											Realized* through virtual conferences; publication underway
Development of policy briefs																																											Realized
Building project findings into policy and practice																																											Realized
Institutionalization efforts, and scaling up to other African countries																																											Initiated

FG = face to face meeting with project investigators in Ghana; SK = stakeholder meeting in Kenya; SG = stakeholder meetings in Ghana

Co-ordination

- **Pre-project launch conference calls organised by UG:** The activity was successfully implementing mainly via virtual video conferencing
- **Pre-project launch stakeholder engagements:** Key stakeholders including government (the Ministry of Health, Food and Drugs Authority, Ghana Health Service, National Development Planning Commission), United Nations Agencies (UNICEF, WHO) and Civil Society (NCD Alliance) were engaged. The project focus, objectives and expected outcomes were discussed, and their buy-in sought.
- **Obtain Ethical approval from relevant IRBs:** The activity was implemented – making it possible for field data collection to start.
- **Capacity strengthening/INFORMAS protocols adaptation:** As detailed within this report. Two capacity building workshops were implemented. Also capacity of early career researchers (a postdoctoral fellow, doctoral and master's students) was strengthened.
Project capacity-building workshop 1: <https://www.meals4ncds.org/en/the-meals4ncds-project-team-holds-a-workshop-around-strengthening-teams-capacity-to-implement-the-project/>
- **Project Launch:** Project was successfully launched as detailed within this report. Details can be found here
Project Launch: <https://www.meals4ncds.org/en/an-international-team-of-researchers-led-by-the-university-of-ghana-launch-an-innovative-ncds-prevention-project-the-meals4ncds-project/>
- **Face to face project meetings in Ghana:** Four face to face project meetings (project capacity building workshop (#1), National Nutrition Stakeholder meeting, Consultative meeting Project capacity-building workshop 1: <https://www.meals4ncds.org/en/the-meals4ncds-project-team-holds-a-workshop-around-strengthening-teams-capacity-to-implement-the-project/>.
MEALS4NCDs Prevention Project, the Dietary Transitions in Ghanaian/African Cities Projects, and others partner to deliver National Multi-Stakeholder Nutrition Forum and Ghana's 1st National Nutrition Conference <https://www.meals4ncds.org/en/meals4ncds-prevention-project-the-dietary-transitions-in-ghanaian-african-cities-projects-and-others-partner-to-deliver-national-multi-stakeholder-nutrition-forum-and-ghanas-1st-national-nu/>

Implementation of food environments modules and other project work packages

- Food Promotion: Successfully executed as detailed within this report
- Food Provision: Successfully executed as detailed within this report
- CRM / Net-Mapping: Successfully executed as detailed within this report

Dissemination & exploitation

- Open access presentation of project reports, and results through the project website:
Project website: <https://www.meals4ncds.org/en/>
- Local dissemination/stakeholder engagement/workshops:
MEALS4NCDs Project and partners to organise United Nations Food Systems (UNFSS) Dialogue
Posted on May 19, 2021 by MEALS4NCDs <https://www.meals4ncds.org/en/meals4ncds-project-and-partners-to-organise-united-nations-food-systems-unfss-dialogue/>
Project capacity-building workshop 1: <https://www.meals4ncds.org/en/the-meals4ncds-project-team-holds-a-workshop-around-strengthening-teams-capacity-to-implement-the-project/>.
MEALS4NCDs Prevention Project, the Dietary Transitions in Ghanaian/African Cities Projects, and others partner to deliver **National Multi-Stakeholder Nutrition Forum and Ghana's 1st National Nutrition Conference** <https://www.meals4ncds.org/en/meals4ncds-prevention-project-the->

[dietary-transitions-in-ghanaian-african-cities-projects-and-others-partner-to-deliver-national-multi-stakeholder-nutrition-forum-and-ghanas-1st-national-nu/](#)

Consultative meeting on policy bundle development: The Ministry of Health (MOH), with support from MEALS4NCDs Project, and the Coalition of Actors for Public Health Advocacy (CAPHA) convened a meeting on the 30th of September, 2021 in Accra, to explore the possibility of developing a food policy bundle for healthier diets in Ghana. The event was tracked in over 15 local and international media <https://www.ghanaweb.com/GhanaHomePage/features/Government-championing-Food-Environment-transformation-in-Ghana-1373662>

- Regional, international conferences, and publications

The 1st FERN meeting (FERN2020) was successfully implemented in November 2020. The meeting themed “Connecting Food Environment Researchers across Africa” welcomed about 160 participants each day from around the globe. <https://www.meals4ncds.org/en/fern-meeting-2020/>

The 2nd FERN meeting (FERN2021) themed “Leveraging Africa’s Food Environment Research Network (FERN) to transform Africa’s food systems” was successfully implemented in November 2021; this time in collaboration with the International Network for Food and Obesity/Non-communicable Diseases Research, Monitoring and Action Support (INFORMAS)’s Africa e-symposium series. <https://www.meals4ncds.org/en/fern2021/>

UN Food Systems National & Independent Dialogues The MEALS4NCDs Team provided technical support to the government of Ghana in her plan to organise a member state Food System Dialogue <https://www.meals4ncds.org/en/meals4ncds-project-and-partners-to-organise-united-nations-food-systems-unfss-dialogue/>

- **Development of policy briefs**

Three policy briefs on Food Promotion, Food Provision and Community Readiness were developed from evidence generated from the MEALS4NCDs project. These briefs tailored to policymakers in Ghana suggest policy recommendations relating to the following areas:

- Improving the nutritional quality of sold and provided foods in Ghanaian schools: priority recommendations for policymakers and key stakeholders – Policy Brief.
- Restricting the marketing of unhealthy food to Ghanaian children – Policy Brief.
- How ready are community stakeholders to address marketing and availability of unhealthy foods and drinks in and around basic schools in Greater Accra region? – Policy Brief.

- **Building project findings into policy and practice**

Policy and practice outcomes and the policy bundle project: Data from the MEALS4NCDs Project, and other earlier local food environment studies contributed to the development of a new project – the Healthier Diets for Healthy Lives (HD4HL) Project. The project aims to build evidence and mobilize multi-stakeholder actions toward a policy bundle for healthier and more equitable consumer food environments that reduce the double burden of malnutrition in Ghana. The policies in the bundle include front of pack labelling policies, marketing restrictions policies, fiscal policies, and public food procurement policies, all of which will be undergirded by a fit-for-local purpose nutrient profiling model.

- **Institutionalization efforts, and scaling up to other African countries**

A proposal to establish FERN as an Academic Center has been prepared and will be submitted to the Academic Board of the University of Ghana for consideration. The Center would concern itself with food studies, food systems, and food environment research, advocacy, policy and practice.

Consultations and negotiations are currently underway to introduce food environment indicators into Ghana’s District Health Information Management System (DHIMS 2)

Through the efforts of FERN, other countries in the sub-region (Nigeria and Egypt) have reached out for support to introduce some of the INFORMAS modules in their countries.

Successful implementation of the activities in the Project's Work plan/Implementation plan contributed to the successful realization of the Project's Milestone (reproduced below). Eight of the nine milestones have been achieved. The only Milestone yet to be met is the ninth – Final Payment, which is scheduled to be done following acceptance of the final technical report.

Synthesis of research results and development outcomes

We present below a synthesis of research results and development outcomes by project objectives and the specific studies conducted.

Research Objective 1: Describe the nature and extent of unhealthy foods and non-alcoholic beverage promotion on television, in stores, and in and around schools (WP1)



Study 1: Assessing the nature and extent of unhealthy foods and non-alcoholic beverage promotion on television

Objectives

To describe the nature and extent of unhealthy foods and non-alcoholic beverage promotion on Ghanaian television.

Method

Sampling: Three free-to-air local/national television channels, in terms of children viewership, were identified and live programming on these channels were recorded. **Data collection:** The recording process began in February 2020 and ended in May, 2020 covering one school term (3 months) and one-month of vacation. TV recording for the selected channels on each of the selected minimum 4 days started at 6am and ended at 12am (06.00 to 24.00). Recordings on all three channels were done simultaneously. **Analysis:** The data were analysed as per the INFORMAS protocol.

Findings

A total of 4480 advertisements were recorded and 999 (23%) of these were of food adverts. The numbers of recorded food advertisements per TV channel ranged from 229 – 410. Among the program categories assessed, soap opera and miscellaneous entertaining (including variety shows, contest shows and spectacle) had the most occurrence of advertisements (26% each).



Between 229 to 410 food advertisements recorded per TV channel in Ghana

The proportion of food advertisement that featured unhealthy food were 58% compared to 26% and 16% of food advertisement, which were for healthy food and miscellaneous foods respectively. Of all food product categories, sugar sweetened drinks (26%) were the most frequently promoted food product category followed by recipe additions (13%), breads, rice and rice products without added fat, sugar or salt (9%), bottled water (8%), alcohol (8%). The most commonly used promotional techniques was promotional characters in 37% food advertisements. Premium offers were used 8% of advertisement.



SSBs were the most frequently promoted food product category on TV

used in

Implication for intervention

- Unhealthy food advertising on national broadcasting TV channels known to be watched by children should be regulated. These policies should specifically define permissible time when unhealthy food would be prohibited from airing on National Tv station, as done for alcohol advertisements.
- Legislation that will compel all foods company that adverted foods product to declare nutrient composition exceeding the recommended threshold on advertisement and if possible, the associated health effect when consumed.
- Food advertisement found to be misleading especially through the usage of inaccurate claims should be banned regardless of media platform or venue.
- The usage of promotional strategies or techniques, such as including incentives, and popular children's personalities or characters should be regulated on products directed or likely to appeal to children.
- Laws that prohibit the marketing of unhealthy foods such as ultra-process foods and foods products with excessive levels of added sugar, salt, and fat during peak viewing times for children.
- Enact and enforce a legislation regulating the promotion, sponsorship, advertisement and sale of food and drinks with excessive levels of added sugar, salt, and saturated fatty acids/trans-fat print and electronic media, and in settings where children frequent



Study 2: Mapping of outdoor food advertising and outlets within and around selected basic schools in the Greater Accra region

Objectives

- To assess the density/hotspots of outdoor food advertisements, and outlets around schools.
- To examine the distribution of healthy vs unhealthy food advertisements around schools.

Method

Sampling: The project sample size was 200 public sector basic schools in 6 districts in the Greater Accra Region. **Data collection:** Zones earmarked for assessment were road networks within a distance of 250m from the main entrance of each school. Direct observation was used to locate all food advertisements and food outlets present within study zones. **Data collection:** Smartphones with built-in geo-positioning functions and predesigned template were used to map and record attributes of all advertisements and outlets. **Analysis:** Advertised foods were classified (core or noncore) in accordance with the INFORMAS food classification system.

Findings

A total of 5,887 advertisements were identified around the surveyed schools, 42% of which were for foods and beverages. Advertisements were most prevalent at food outlets (78% of all food advertisements) but also along and on non-food structures. Overall, 70% of food advertisements featured non-core/unhealthy products, 12% and 14% had core/healthy and miscellaneous (including soup cubes, seasonings, tea) products respectively.



78% of food advertisements were prevalent at food outlets

roads, while

About 69% of the foods and beverages advertised were ultra-processed foods, 29% processed, 5% processed culinary ingredients, and 19% unprocessed or minimally processed foods. Sugar-sweetened beverages the most advertised food product type (32%). Promotional characters were found on 14% of all food advertisements, most were cartoons/manufacturer's characters (69%). About 8% of all food advertisements premium offers, including price discounts and gift/collectables.



70% of all food advertisement were classified as non-core/unhealthy

were had

Figure 1 Hotspot map of food advertisements around schools

Figure 2 Hotspot map of food outlets around schools

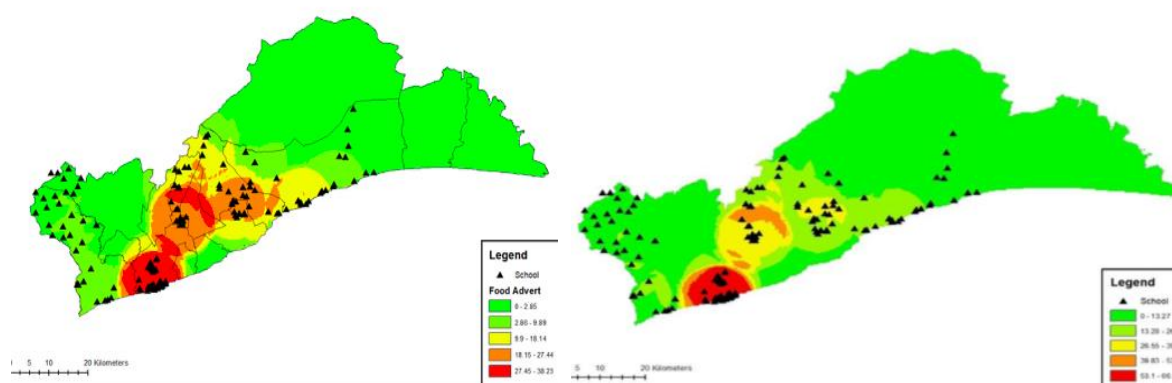
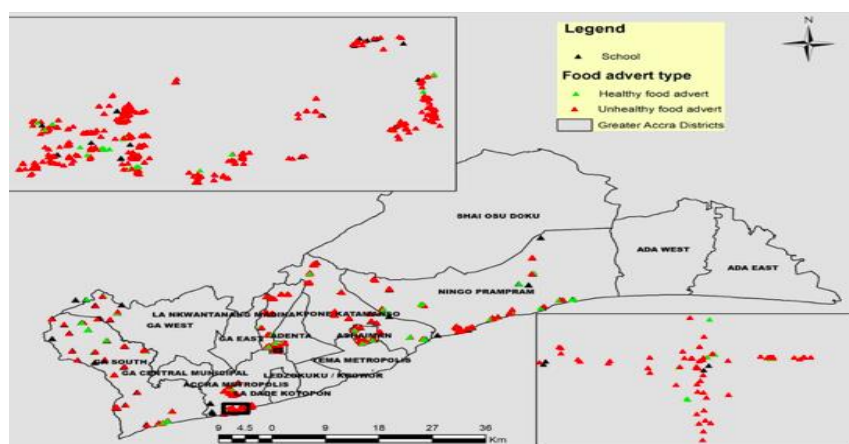
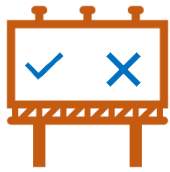


Figure 3 Distribution map of food advertisement healthy (green) and unhealthy (red) around schools



Implications for policy and practice

- The ratification and implementation of zoning laws restricting the location of unhealthy food adverts around schools.
- Government should pass legislation to regulate, the promotion and sponsorship, advertisement and sale of food and drinks with added sugars, and other nutrients of concern (saturated fats, salt) in school environment and other child-laden settings, enforceable with fine.



Study 3: Assessing the healthiness of outdoor food advertising within and around public sector basic schools

Objectives

- The prevalence of outdoor foods, alcoholic and non-alcoholic beverages advertisements around a sample of public basic schools in the Greater Accra Region of Ghana.
- The nature of outdoor foods, alcoholic and non-alcoholic beverages advertisements around a sample of public basic schools in the Greater Accra Region of Ghana.

Methods

Sampling: We cross sectional surveyed 200 schools, covering six selected districts in Greater Accra Region.

Data collection: All outdoor advertisements within school zones (250m road network distance from the schools' main entrance) were mapped. Food advertisement attributes– including advert setting, advert type, advert size, number of food products displayed, product/brand name, and promotional techniques used were recorded. **Analysis:** We categorized all adverts mapped as food and non-food. Foods advertised were categorized according to the INFORMAS food categorization system: core/healthy foods, non-core/unhealthy foods and miscellaneous.

Key findings

A total of 5,887 advertisements were identified around the surveyed schools. 42% (2,473) of advertisements observed within the school zones assessed were food advertisements. **The median number of food advertisement per school was 14** (range 1 -124). There were more food advertisements in urbanized districts compared to rural districts. 70% of foods in the advertisements recorded were unhealthy. Ultra-processed foods amounted to 69% of the foods advertised. **Sugar sweetened beverages and alcoholic beverage were the two most advertised products.**



A median of 14 advertisement per school and most of these adverts were SSB and alcoholic beverages



Implications for policy and practice

- Zoning regulations should be put in place in areas immediately around child- serving institutions like schools to protect children from exposure to unhealthy food commercial messages.
- Comprehensive strategy that regulates all advertising media platform from unhealthy food advertising should be considered.
- A clear guideline should be developed on foods that are permitted for advertisements and not permitted to children across all form of media platforms including outdoor advertisements.
- Government must implement regulations to reduce the volume and influence of unhealthy food marketing reaching children.



Study 4: How healthy are modern food retail outlets? Availability of healthy and discretionary ultra-processed foods in food retail outlets of selected districts in the Greater Accra region

Note: Study data below was collected during MEALS4NCDs project and therefore presented along in this report. HOWEVER, this study is more relevant to the INFORMAS food retail module

Objective

- To determine the healthiness of foods sold at supermarkets and mini-marts in the Greater Accra Region of Ghana.

Methods

Sampling: All eligible retail outlets located in six districts involved in the MEALS4NCDs Project were accessed. Local district offices were able to provide list of supermarkets found within their jurisdictions. Field data collectors were trained to identify and map supermarkets that may not have been captured in the district database. 67 out of 103 identified supermarkets/mini-marts consented to participate in the study. **Data collection:** In-store assessment i.e., the shelf length and breadth of all food products found in all consented supermarkets/mini-marts was measured. Digital photographs of the food products were also taken. **Analysis:** Eligible retail outlets with less than 200m² of floor area were categorized as mini-marts. Descriptive analyses were performed to generate the total areas occupied by the various food groups and the ratio of unhealthy to healthy foods. Healthiness of food was defined using NOVA classification and calory density. Ultra-processed food or food items which had >225 kcal/100 g were classified as unhealthy. The ratio of the area occupied by unhealthy to healthy foods was used to determine the healthiness of the supermarkets/mini-marts.

Key findings

Of the 67 retail outlets assessed, 86.6% were mini-marts. 85% of the total shelf area was occupied by food categorized as unhealthy. Refined grains and refined grain products were the most available food groups occupying 30.0% of the total shelf space occupied by food. The second most available, sugar-sweetened beverages occupied 20.1% of total shelf space. The least available food group—unprocessed staples, was found in only one low poverty incidence district, and occupied 0.1% of the total food shelf space. Supermarkets/mini-marts in two districts did not sell fresh fruits or fresh/unsalted canned vegetables. 68% of all 3952 food products available were ultra-processed foods. Across supermarkets/mini-marts, the ratio of unhealthy-to-healthy foods, or ultra-processed-to-unprocessed foods ranged from 2.5 to 6.7 with an average (SD) of 5(2).



Refined grain and refined grain products were the most available food groups followed by SSBs. 68% of all 3952 food products were ultra-processed foods and for each healthy food sold there are up to 6 unhealthy food offered along side

Implications for policy and practice

- Government in partnership with other stakeholders should institute measures that improve the availability of healthy foods within supermarkets in Ghana.
- Government should also ensure that local authorities are equipped with the requisite resources to monitor unhealthy foods sold in supermarkets.

Research Objective 2: Describe the nutrition standards or guidelines that are in place to implement specific policies or programmes within public sector basic schools in the Greater Accra region (WP2)



Study 5: Analysis of Food Provisioning Policies and Programmes in Ghanaian public sector basic schools (PSBS)

Method

Figure 4 Component I: Identification and Description

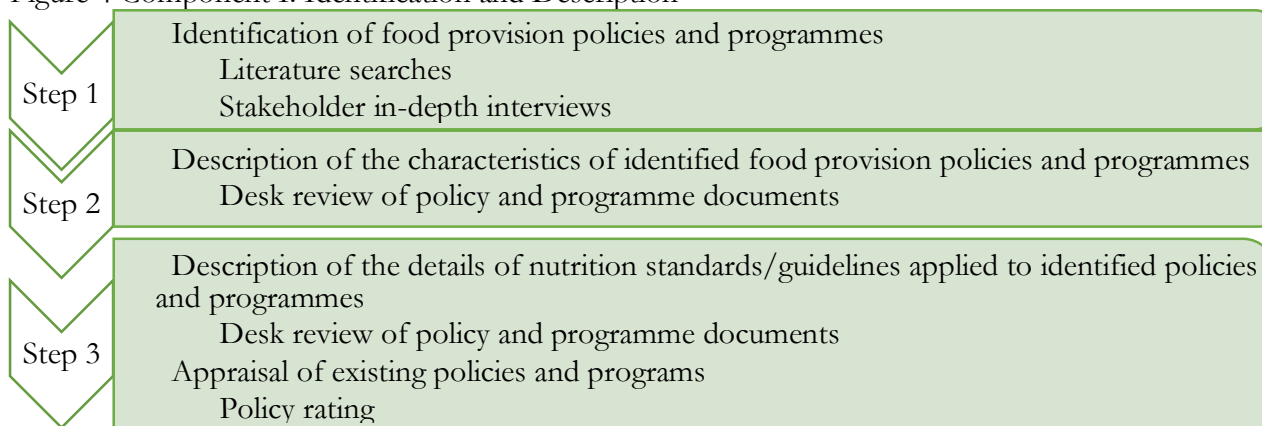
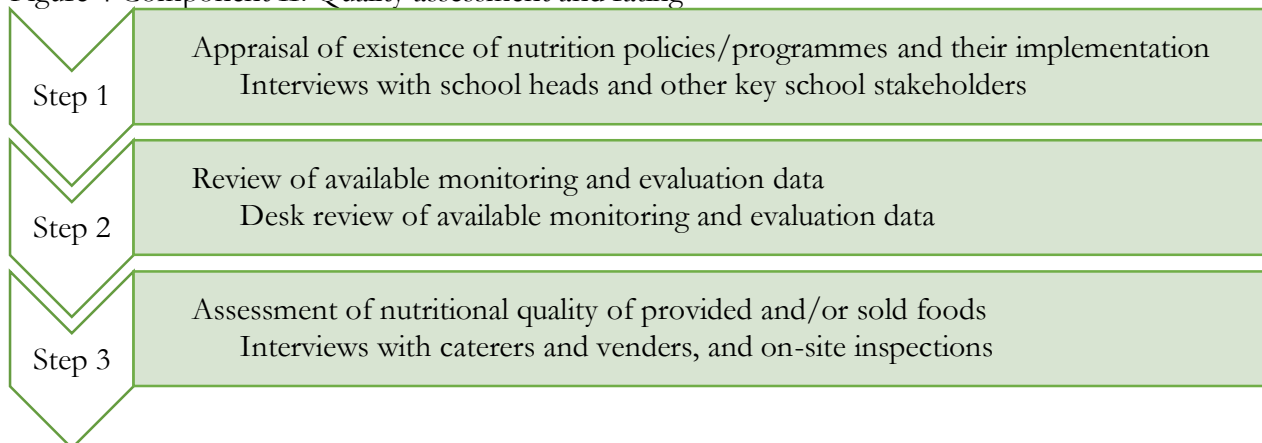


Figure 4 Component II: Quality assessment and rating



Findings

Table 2 Component I: Identification and Description

Policy/Programmes Identified	
Ghana School Feeding Policy	
Ghana School Feeding Programme	
Description and Details of the Ghana School Feeding Program	
Jurisdiction and sector	Government Kindergarten and primary schools in deprived communities
Type of participation	No details about type of participation and school selection
Implementation support	Resources available for catering staff
Monitoring framework	Monitoring framework available
Type and details of nutrition standards/guidelines applied	No clear details about nutrition standards/guidelines “...to provide children in public primary schools and kindergartens with one hot nutritious meal, prepared from locally grown foodstuffs, on every school-going day”, “...30% RDA standard through the one, hot, nutritious meal”

Table 3 Component II: Quality assessment and rating

School food and nutrition program and school meals	
Comprehensiveness score:4/12	
Strength score: 2/21	
Areas addressed	Areas for improvement
<ul style="list-style-type: none"> - Provision of nutritious meals - Some application of food standards - Provision of free, accessible, clean and safe water - Nutrition training for catering personnel - Purchasing of local food for school meal 	<ul style="list-style-type: none"> - Details nutrition standards/guidelines - Food safety and food emergencies - School meal environment - Seat time - Sanctions for non-compliance
Nutrition standards for sold and other competitive food and beverages	
Comprehensiveness score:0/13	
Strength score:0/13	
Areas Addressed	Areas for improvement
None	<ul style="list-style-type: none"> - Regulation of sold food and beverages during school hours - Application of nutrition standards/guidelines to sold and competitive foods - Regulation of food and beverages served at class parties and others celebrations - Assurance of compliance and sanctions for non-compliance
Wellness promotion and food and beverages marketing	
Comprehensive scores: 0/11	
Strength score: 0/11	
Areas addressed	Areas for improvement
None	<ul style="list-style-type: none"> - Modelling of healthy eating beverages by staff - Physical activity - Marketing within the immediate school environment - Marketing in curricula and other educational materials - Marketing at fundraise and corporate sponsors events
Implementation, Accountability, Monitoring and Evaluation, and Communication	

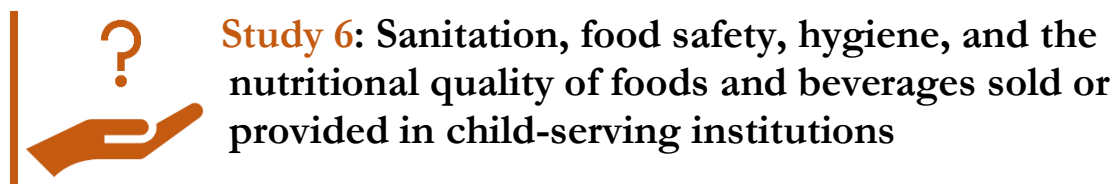
Comprehensiveness score:8/12 Strength score:2/12	
Areas addressed	Areas for implementation
<ul style="list-style-type: none"> - Ongoing implementation committee at district level - Community-wide representation in district implementation committee - Provision of monitoring framework - Periodic assessment of district implementation 	<ul style="list-style-type: none"> - Provision of implementation framework for schools - Implementation support for school staff - M&E support for school staff - M&E support and tools for catering staff

Implications for policy and practice

The data from these studies motivate the following recommendations:

- Establish and apply strong and comprehensive food-based and/or nutrient-based standards to the Ghana School Feeding Policy and Programme to provide a robust way of ensuring the nutritional quality of meals and beverages.
- Use language that is enforceable in policy documents and include sanctions for non-compliance
- Address food safety and food emergencies in the school food programme.
- Implement policies for regulating sold foods and other competitive foods and beverages within reach to pupils.
- Provide outlets for fresh drinking water and encourage the consumption of water as a replacement for SSBs.
- Provide training to school heads, teachers, catering team, and other school stakeholders to model healthy behaviours.

Research Objective 3: Evaluate the nutritional quality of foods and beverages sold or provided in public sector basic schools (WP2)



Objectives

- To evaluate the nutritional quality of foods and beverages sold or provided in public sector basic schools
- To assess food safety and hygiene practices among school caterers and food vendors (FVs) in selected public sector basic schools participating in the Ghana's school feeding programme (SFP).

Methods

The selected 200 PSBS from six districts in the Greater Accra Region were visited and food outlets along road network buffers of 250m from the main entrance of the schools and those located inside the school compound were mapped. School caterers contracted by the SFP and a sample of FVs operating within the school compounds were interviewed. Details of food provided, or sold were recorded. The analysis is based on a sample of 660 FVs and 129 caterers from 169 schools that were implementing the SFP.

Findings More than three-quarters of caterers and over half (59%) of FVs reported receiving certification from a regulatory body to provide or sell food respectively. Around half of caterers had been medically certified to sell food, versus more than three-quarters of FVs, although only 16% provided evidence of this. Only 42% of FVs and 15% of caterers reported having ever received training on food safety and hygiene. One in four FVs declared having never been visited by food inspectors from regulatory bodies to assess food hygiene and safety. One in two FVs reported lack of water (54%) and soap (61%) for handwashing at vending sites. Almost half (48%) of FV and a quarter (23%) of caterers did not adequately protect food from environmental contaminants; uncovered organic waste was found near 71% of FV sites. About a third (32%) of FVs did not have adequate sanitary conditions at their vending sites.

Implications for policy and practice

Sanitation, food safety, hygiene, and the nutritional quality of foods and beverages sold or provided in child-serving institutions are suboptimal in public sector basic schools in the Greater Accra Region. Current food quality and food safety legislation needs to be implemented more rigorously through a combination of different actions.

Research Objective 4: Are community stakeholders ready to accept, and do they have the capacity to implement interventions to improve children's food environments in the Greater Accra region? (WP3)



Study 7: Network Mapping of Stakeholders in Food Promotion and Provisioning among children in schools in Ghana

Objective

- To identify, and describe key stakeholders (individuals and institutions) who influence food promotion and provisioning among children and adolescents in Ghana.

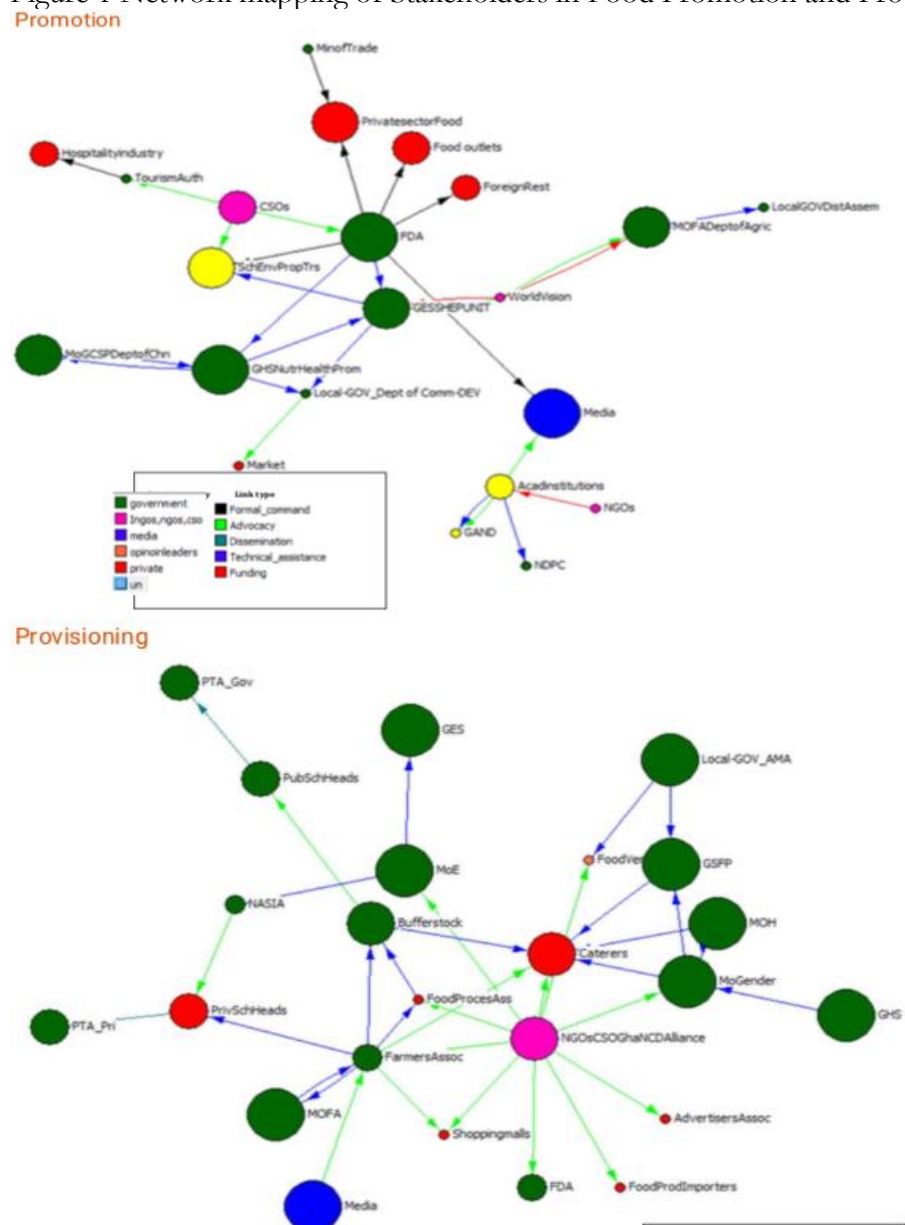
Methods

Relevant stakeholders were identified using the IFPRI Net-Map methodology (10 informants for food promotion and 9 informants for food provision) and interviewed. The interview was virtual and conducted in 4-steps participatory conversation that included 1-actor mapping, 2-linking actor networks, 3-influence mapping and 4-identifying champions/opinion leaders. The interview was recorded and transcribed to complete the map. Facilitators and note takers -trained by in-house experts- supported the interview sessions. Each tool was pretested prior to interviews. Consent was obtained from each participant prior to the interview.

Findings

Diverse actors are involved in the promotion and provision of food for children/adolescents in Ghana and government agencies are the most influential. However, there exist untapped opportunities for engagement.

Figure 1 Network mapping of Stakeholders in Food Promotion and Provisioning in Ghana



Implications for policy and intervention

- Promote co-creation and co-actions among identified stakeholders.
- Empower the media with adequate food environment and nutrition information.
- Establish a coordination mechanism for promoting healthier diets in food environment.

Study 8: The readiness of Ghanaians community to implement changes to improve children's food environments in the Greater Accra

Aims

- Determine the stage of readiness of communities to address the marketing and availability of unhealthy foods and drinks in and around public basic schools in the Greater Accra Region, and
- Gain qualitative insights into community factors that could affect the implementation of interventions targeting unhealthy food and beverage marketing and availability.

Methods

The CRM incorporates quantitative and qualitative insights into a community's readiness. In this study, "The community" was operationally defined both over geographic space (geographic community) and according to stakeholders of interest (interest community). Geographically, the focus was on the Greater Accra Region of Ghana. The interest community comprised individuals and key informants from both within and outside the geographic community, known to wield influence and/or play a leadership role in promoting healthy food environments. Individual community readiness mapping informants were selected purposively to represent a wide range of sectors/programmes (regulatory authorities, schools, commerce, health (e.g., MoH, GHS), religious institutions, school feeding programmes, children/youth clubs, urban planners) as well as policy areas in question – TV marketing, outdoor marketing, food provision, etc. In total, 18 key informants were interviewed between March and August 2021.

The CRM tool applied in this Project adapted an existing [protocol](#), building on the [previous use of CRM in deprived communities in Ghana](#). The CRM serves as a theoretical framework for understanding and improving community readiness for interventions. The CRM tool consists of 36 open questions addressing five readiness dimensions: community knowledge of efforts, leadership, community climate, community knowledge of the issue, and resources.

Findings

The Greater Accra region is at the Pre-Planning stage (overall readiness score=4) which means that while efforts are ongoing to address the marketing and availability of unhealthy food and drinks in and around schools, there is a clear recognition among community members that more needs to be done to address the issue of marketing and availability of unhealthy foods in and around schools.

Figure 6 Numerical representations of readiness (9 stages of readiness) within the Greater Accra Region

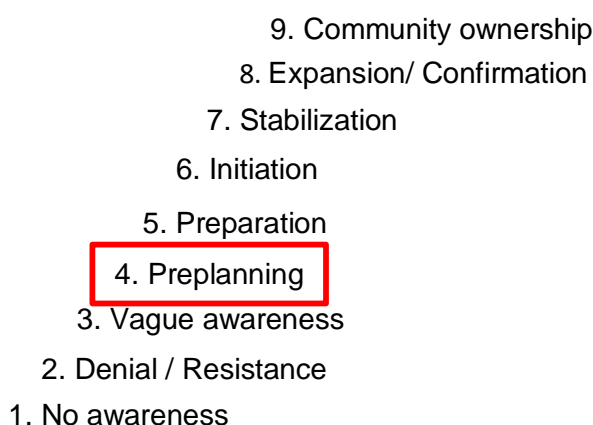


Figure 7 Scores of readiness measured for each CRM dimension



Implications for policy and practice

- Improve community knowledge of existing local efforts before new interventions are implemented, and securing resources (e.g. funding) to support efforts

- Efforts should focus on addressing the concerns of community members that might be present as well as misinformation about the potential impacts of various food environment interventions (e.g., concerns about what alternative livelihoods could support owners of local shops selling foods and drinks considered to be unhealthy foods to children).
- Information dissemination in the communities should be done using influential figures such as religious leaders, political figures, community health workers, and local celebrities, as well as popular media platforms such as television, radio, and social media to convey simple but understandable messages about the links between unhealthy food environments and poor diets.

Methodology

To investigate the research questions (study objectives), the project adopted a concurrent multi-method design that used policy analysis, quantitative, and qualitative data collection and analysis approaches. The various methods deployed have been described in detail in our [published protocol](#). Following we briefly describe these approaches.

Study tool development and adaptation processes

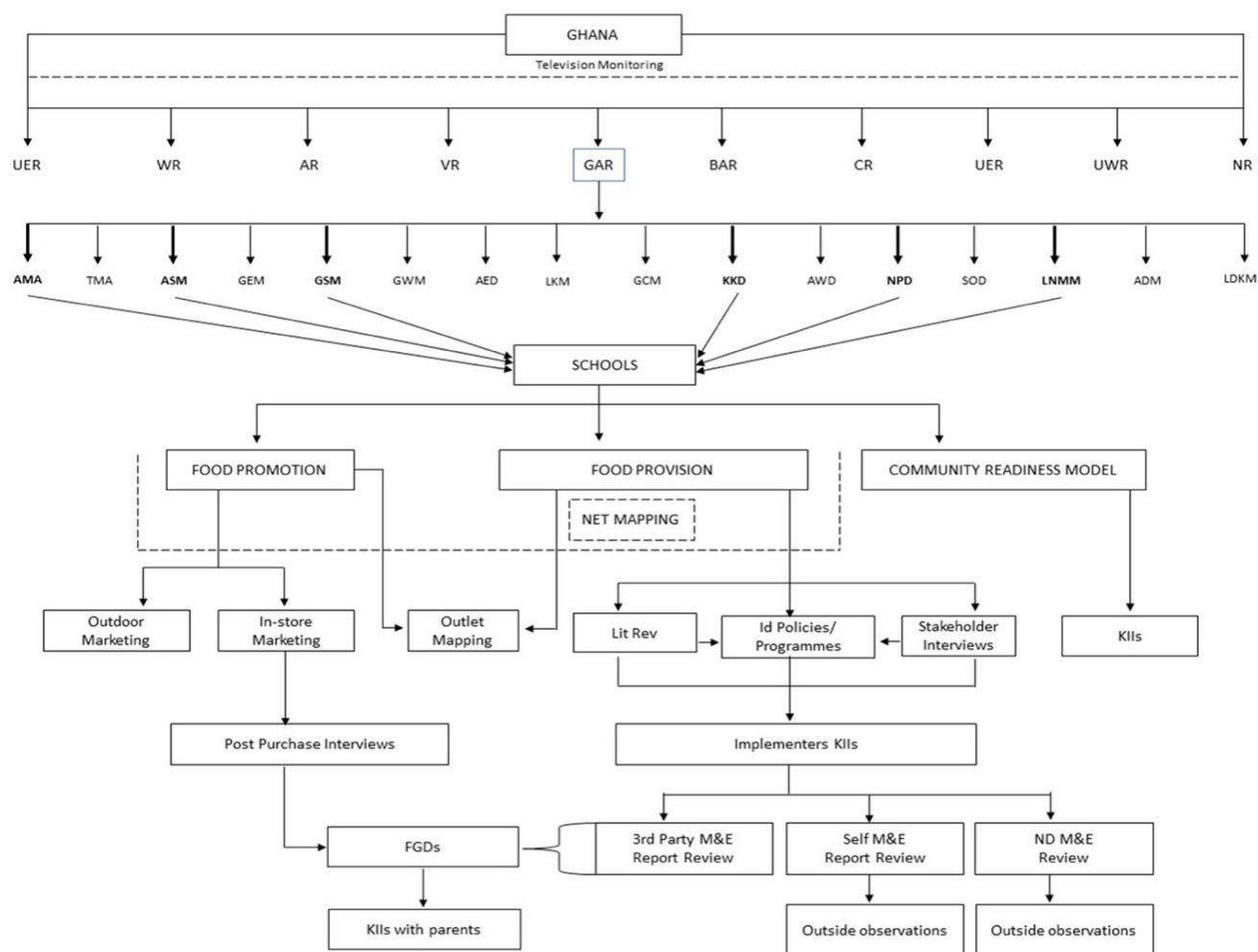
The protocol for this project was developed iteratively and collaboratively by project partners. A series of virtual engagements between the project team and leaders of the adapted INFORMAS Modules led to the development of initial drafts of the protocols. Following this, a face-to-face protocol adaptation workshop, facilitated by project co-investigators and Module Leaders was conducted in August 2019, in Ghana. Three work teams (each team focusing on one of the work packages) were assigned the task of revising the initial draft protocol. WP1 Food provision received additional inputs from the INFORMAS School Health Group (part of the wider INFORMAS Network). The CRM component (which is not part of INFORMAS methods) adapted an existing Net-Map interview tool and CRM protocol, building on our previous use of CRM in Ghana in deprived communities. The final MEALS4NCDs protocol comprised 15 tools (all of which are available and accessible on the project website <https://www.meals4ncds.org/en/protocols/>

Project collaborators and partners at a capacity building workshop, August 2019



Figure 8 summarizes the methods used in implementing the project work packages and data collection. TV monitoring in WP 1 was done as a nationwide survey covering all 10 regions of Ghana. Six districts in the Greater Accra Region (GAR) were selected for the field work. Two hundred public sector basic schools were selected from the six districts to serve as the population sampling unit. The 3 WPs (Food promotion, Food provision, and CRM) were implemented in all 6 districts. The data collection methods employed for the work packages included outlet mapping, key informant interviews (KIIs), exit interviews, and focus group discussions (FGDs).

Figure 8 Project implementation plan



AED, Ada East District; ADM, Adentan Municipality; AMA, Accra Metropolitan Assembly; AR, Ashanti Region; ASM, Ashaiman Municipality; AWD, Ada West District; BAR, Brong Ahafo region; CR, Central Region; ER, Eastern Region; GCM, Ga Central Municipality; GEM, Ga East Municipality; Ga South Municipality; Ga West Municipality; GAR, Greater Accra Region; KKD, Kpone- Katamanso District; La Dade Kotopon Municipality; La Nkwantanang-Madina Municipality; LKM, Ledzokuku-Krowor Municipality; NPD, Ningo Prampram District; NR, Northern Region; Shai Doku District; TMA, Tema Metropolitan Assembly; UER, Upper East Region; UWR, Upper West Region; VR, Volta Region; WR, Western Region.

Source: [The MEALS4NCDS Protocol](#)

Field procedures

The table below summarizes the project work packages the methods used to implement them.

Table 4 Work Packages (WPs) of the MEALS4NCDs Project

WP1 - Food Promotion: Objective: Assesses the exposure and power of promotion of unhealthy foods and non-alcoholic beverages to different population groups.	
Sub-objectives:	Methods
<ul style="list-style-type: none">Describe the nature and extent of unhealthy foods promotion on television, in stores, and in and around schools.Assess the frequency and level of exposure of children to unhealthy foods.Estimate the prevalence of unhealthy food advertisement within school zones.	Collection and analysis of advertisement, publicity, and sales promotion of food to children via television, in stores, and outdoor advertisement within school zones (within 250m of schools).
WP2 - Food Provision: Answers the question: “What is the nutritional quality of foods and non-alcoholic beverages provided in different settings (e.g., schools) in the Greater Accra Region of Ghana?”	
Sub-objectives:	Methods
<ul style="list-style-type: none">Describe the nutrition standards or guidelines that are in place to implement specific policies or programmes within public sector basic schools.Determine the nutritional quality of foods provided or sold in child-serving institutions (focus on primary schools).	Monitoring of policy and programme implementation in public-funded school settings in a selected school.
WP3 - Community Readiness Explores the readiness of stakeholders to accept and implement interventions to improve the food environment of children in selected settings in the Greater Accra Region of Ghana.	
Sub-objectives:	Methods
<ul style="list-style-type: none">Assess the readiness of, and capacity of the studied community/stakeholders, as well as barriers and facilitators to implement food environment improvement interventions.	Stakeholder mapping using the IFPRI Net-Map methodology

Stakeholder engagements

In addition to the implementation of the research related to these 3 WPs, the project sought to motivate action to support action on other aspects of the food environments e.g., the regulatory, legislative, and fiscal levers of food environment policy. To realize these, actions including sensitization and advocacy were initiated and sustained locally but also via regional platform - the Africa Food Environment Research Network (FERN). For more information on FERN please refer to pages 25-26 or visit <https://www.meals4ncds.org/en/fern2021/>.

The project has engaged government and other food system stakeholders in ways that ensured acceptability of its findings, promoted optimal reach, implementation, and institutionalization of food environment

improvement actions. Although the project was executed within a three-year period, the overreaching goal of the project -to measure and support public and private sector actions that create healthy food environments- holds requirement for sustained actions beyond the life of the project and beyond the work packages indicated. To this end, planned engagement with relevant stakeholders will continue even after completion of the project and involve the regulatory, legislative, and fiscal levers of the food environment arsenal.

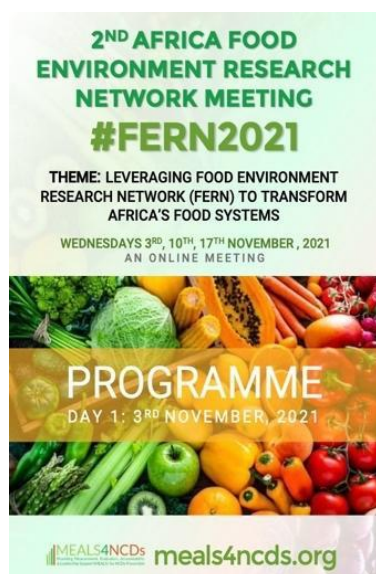
One of the earlier stakeholder engagement was the “National Multi-Stakeholder Nutrition Forum and Ghana’s first National Nutrition Conference”. The MEALS4NCDs Prevention Project, and other stakeholders on 21st January 2020 co-delivered a National Multi-Stakeholder Nutrition Forum and Ghana’s first National Nutrition Conference in Accra, Ghana. The conference brought together researchers and key stakeholders from across various sectors in nutrition to discuss and share experiences of various nutrition research conducted in Ghana. The overarching goal of the Forum was to inform nutrition policy. The conference was themed “Evidence-Informed Nutrition Policies and Programmes: Now and Beyond” and hosted presentations covering actual and potential contributions of studies on undernutrition, and the Food Environment in Ghana. About 100 individuals from various Ministries, Departments, and Agencies, NGOs, representatives of United Nations Agencies, Civil Society Organisations, Academia, and the media attended the conference.



Stakeholders at the National Multi-Stakeholder Nutrition Forum: From L – R: Professor Francis Zotor, Dr. Kingsley Pereko, Professor Richmond Aryeetey, Professor Reginald Annan, Professor Paul Amuna.

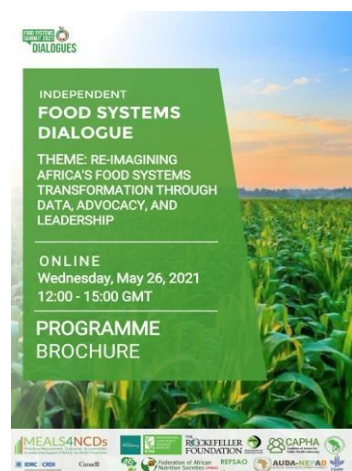
Other engagement were done via the Africa Food Environment Research Network (FERN). FERN is an initiative of the MEALS4NCDs project with a focus on capacity building. The initiative focusses on: 1) building research capacity for innovative food environment research in Africa, 2) improving South-South and North-South partnerships for robust implementation of food environment research and practice in Africa, and 3) sustaining dialogue around current and future needs for food environment research in Africa. [More details.](#) The 1st FERN meeting (FERN2020) was successfully implemented in November 2020. The meeting themed “Connecting Food Environment Researchers across Africa” welcomed about 160 participants each day from around the globe. 26 delegates shared their experiences, challenges, and opportunities for improving food environment research, policy, and practice, including advocacy for NCDs prevention in Africa. Delegates and participants also received training on two INFORMAS Modules (Food-EPI by Dr. Vandevijvere and the Food Prices by Professor Amanda Lee). [Watch FERN2020](#)





The 2nd FERN meeting (FERN2021) themed “Leveraging Africa’s Food Environment Research Network (FERN) to transform Africa’s food systems” was successfully implemented in November 2021; this time in collaboration with the International Network for Food and Obesity/Non-communicable Diseases Research, Monitoring and Action Support ([INFORMAS](#))’s [Africa e-symposium series](#). FERN2021 welcomed about 100 participants each day. The registrants included 24 eminent speakers from Africa, Asia, Australia, Europe, and North America. FERN2021 built on the progress made from the 1st meeting, and leveraged research, practice, and policy-making networks to contribute to the transformation of Africa’s food environments and food systems as a whole. FERN2021 & [INFORMAS e-symposium series](#) hosted two capacity building sessions on two INFORMAS modules: Food Prices Module by Sally Mackay and [Food Prices for Nutrition](#) by William Masters, and Food Labelling by Prof Rina Swart and her team. FEERN2021 also hosted [40 abstract presentations](#) on Food Environment research in Africa. The 3rd instalment of the FERN initiative is due November 2022. Announcement/call for abstracts will be posted on the [project social media handle](#).

UN Food Systems National & Independent Dialogues The MEALS4NCDs Team provided technical support to the government of Ghana in her plan to organise a member state Food System Dialogue. The MEALS4NCDs project team in partnership with other regional actors (African Population and Health Research Center, “Réseau de Recherche sur les Politiques et les Systèmes Alimentaires en Afrique de l’Ouest”, African Nutrition Society, Federation of African Nutrition Societies, Coalition of Actors for Public Health Advocacy) also convened an independent FS dialogue in May 2021. The independent dialogue was curated by Professor Anna Larrey And Dr. Namukolo Covic (details [HERE](#)). The dialogue welcomed 81 participants from around the world in various disciplines to examined how “Data, Advocacy, Accountability, Governance, Leadership, and Leadership Support” can be leveraged to contribute to the transformation of Africa’s food systems.



The tables below summarize the different stakeholder engagements held and the partners and collaborators for these events.

Table 5: Stakeholder engagements

Engagements
1. Project Advisory Board
2. Project Launch
3. National Multi-Stakeholder Nutrition Forum and Ghana’s first National Nutrition Conference
4. Africa Food Environment Research Network (FERN) 2020 & 2021
5. United Nations Food Systems (UNFSS) Dialogues (National & Independent)
6. Developing a Food Policy Package for Healthier diets in Ghana: A Consultative Meeting

Table 6 Project partners and collaboration

Partners	Collaboration
University of Ghana; University of Health and Allied Sciences; Ghana Health Service; Africa African Population and Health Research Center (APHRC), Kenya; National Research Institute for Sustainable Development (IRD), France; Amsterdam University Medical Centers, University of Amsterdam, Netherlands; Sciensano, Belgium, University of Toronto, Canada.	MEALS4NCDs details FERN2020 details
Academics/INFORMAS Module Leaders, Civil Society, representatives of UN Agencies (WHO, UNICEF), Government of Ghana, and Regulatory Authorities (more details in acknowledgement)	project Advisory Board details
INFORMAS, UNESCO Chair in World Food Systems, REPSAO "Réseau de Recherche sur les Politiques et les Systèmes Alimentaires en Afrique de l'Ouest", Drivers of Food Choices (DFC) Program, Tufts University's Food Prices for Nutrition, CDIA, ANH Academy, The African Population and Health Research Center (APHRC), Food and Agriculture Organisation (FAO), Rockefeller Foundation, ICLEI Africa, City University London, LMU-Munich, University of Western Cape	FERN 2021 details
ANH Academy, IFPRI led CGIAR, The Rockefeller Foundation led Food Systems Transformative Integrated Policy (FS-TIP), African Population and Health Research Center (APHRC), Coalition of Actors for Public Health Advocacy (CAPHA), African Nutrition Society (ANS), Federation of African Nutrition Societies (FANUS), REPSAO, DFC Program, CGIAR, Chronic Diseases Initiative for Africa (CDIA), the African Union Development Agency (AUDA-NEPAD)	United Nations Food Systems (UNFSS) Dialogue details
DFC, TACLED, the Stories of Change, and the Adolescent Food Environment Projects (all of the University of Ghana), the ROFE Project of Kwame Nkrumah University of Science and Technology, Ghana Strategy Support Program, SNV Netherlands Development Organisation, the University of Health and Allied Sciences, the Ghana Academy of Nutrition and Dietetics, International Food Policy Research Institute (IFPRI), and National Development Planning Commission (NDPC).	National Multi-Stakeholder Nutrition Forum and Ghana's first National Nutrition Conference Details
Ministry of Health, Ghana Health Service, Food and Drugs Authority, National Development Planning Council (NDPC), Coalition of Actors for Public Health Advocacy (CAPHA), University of Ghana, IFPRI	Developing a Food Policy Package for Healthier diets in Ghana: A Consultative Meeting

Ethics and Gender Considerations

The implementation of the project adhered to local and international ethics guidelines. A study protocol and tools were reviewed and granted ethical approval by the University of Ghana Ethics Review Committee of the Humanities (Ethics review ECH 152/18-19) and the Ghana Health Service Ethics Review Committee (Ethics review GHS-ERC 005/06/19). The study tools were pilot tested and finalised for use. The protocol has been published and is now [available here](#) and all the tools are available on the project website.

Regarding gender considerations, the deliberate efforts put in place – in line with our envisioned gender transformative approach resulted in the following:

- a) 3 of 11 Study Investigators are female

- b) 9 of 13 Study Advisory Board Members are female
- c) 3 of 5 Project support staff are female
- d) 2 of 4 Masters students supported by the project (dissertation support) are female
- e) 2 of 2 Doctoral students supported by the project are female
- f) The Post-doctoral Fellow engaged on the project is female
- g) On the field, both boys and girls aged 10-17 years will respond to our surveys. In every selected district, three focus groups (with girls; with boys, and a both genders) were conducted. This was done to permit generation of gender-specific data, gender-sensitive and relevant actions/recommendations toward improving food environment in Ghana.

As outlined above, gender responsiveness was taken into account in all activities. Overall, women were well represented in the project team, making up more than half (63%) of the project team (as outlined below).

Gender balance among project team

Category	Men	Women	Total
Project Investigators	8	3	11
Project Advisory Board	3	8	11
Key Stakeholders	2	6	8
Early Career Researchers	2	4	6
Supported Graduate Students	2*	4	6
Totals	15	25	40

*Dissertation Support to 2 Graduate Students who conducted pilot studies prior to the project's field data collection

The various meetings and events organised during the project were attended by a diverse range of participants. For example, the Food Systems Summit (FSS) Dialogue held in May 2021 was attended by 82 participants (62% women) who were identified through widespread publicity and purposive outreach.

Project outputs, outcomes & impacts

Outputs related to project initiation and capacity building

This section describes the various outputs, outcomes and impacts of the MEALS4NCDs project.

- **Pre-project launch capacity building workshop (# 1).** The 2-day workshop was held on August 13th 2019 and August 14th 2019 and attended by project partners and collaborators. The capacity building workshop was structured around the project's three work packages; the Food Promotion and Food Provision packages, adapted from INFORMAS and a Community Readiness Assessment package, which is not included in the INFORMAS protocol. The sessions were facilitated by project team members Dr. Stefanie Vandevijvere of the Scientific Institute of Public Health (Sciensano), Belgium, Professor Michelle Holdsworth of the National Research Institute for Sustainable Development (IRD), France, and the MEALS4NCDs Project Advisory Chair – Professor Mary L'Abbe, Department of Nutritional Sciences, Faculty of Medicine, University of Toronto, Canada. [Details here](#)
- **Signing of Collaboration sub-agreements:** The MEALS4NCDs Project lead institution, University of Ghana signed collaboration agreements with the University of Health and Allied Sciences (UHAS), African Population and Health Research Center (APHRC), National Research Institute for Sustainable Development (IRD), Academic Medical Center (AMC), University of Amsterdam, Netherlands and Sciensano Research Institute, and the University of Toronto. The key output here is the fully executed sub-agreements.
- **Project Inception and Launch:** The Project was officially launched on Thursday August 15th 2019 in Accra, Ghana. It was attended by the Project Team, Project Advisory Board, and several stakeholders including representatives of various Ministries, Departments, and Agencies (MDAs) - MOH, FDA, NCD Programme of the Ghana Health Service, NDPC, Consumer Protection Agency, Nutrition Department of the Ghana Health Service, Food Research Institute, Ghana Education Service, Council for Scientific and Industrial Research, School Health and Education Program of the Ghana Education Service, Ministry of Finance, Ghana School Feeding Programme, representatives of United Nations agencies –UNICEF, WHO, CSOs, academics/researchers, and a Member of Parliament. A report on the project launch is published here: <https://www.meals4ncds.org/en/an-international-team-of-researchers-led-by-the-university-of-ghana-launch-an-innovative-ncds-prevention-project-the-meals4ncds-project/>
- **Formation of the Project Advisory Board:** The MEALS4NCDs Project Advisory Board was successfully constituted, and Chaired by Professor Mary L'Abbe (University of Toronto, and INFORMAS Food Provision Module Leader). The other members are: Dr Rebecca Pradeilles, School of Sport, Exercise and Health Sciences, Loughborough University Dr. Covic, Namukolo, International Food Policy Research Institute (IFPRI), Ethiopia (IFPRI-Addis Ababa), Mrs. Mary Mpereh, National Development Planning Commission, Prof. Kaleab Baye, Center for Food Science and Nutrition, Addis Ababa University, Ethiopia, Dr. Beatrice Wiafe Addai, Ghana NCD Alliance, Dr. Emmanuel Ankrah Odame, Ministry of Health, Ghana, Mr. Issah Ali, Vision for Alternative Development (VALD), Ghana, Dr. Joana Ansong, World Health Organization, Ghana Office, Lilian Selenje Nutrition Manager, UNICEF, Ghana Office, Mrs. Delese Darko Chief Executive Officer, Food and Drugs Authority, Ghana, and Hon. (Dr) Sebastian Ngmenenso Sandaare, Member of

Parliament and Member, of Parliamentary Select Committee on Health, Ghana. [Details here: https://www.meals4ncds.org/en/project-advisory-board/](https://www.meals4ncds.org/en/project-advisory-board/)

▪ **Capacity building workshop (# 2) & the Africa Food Environment Research Network (FERN)**

The First Africa Food Environment Research Network (FERN) initiative was successfully launched on November 3 2020 during a 3-day virtual meeting hosted by the MEALS4NCDs Project. This first meeting (FERN2020) themed “Connecting Food Environment Researchers across Africa” brought together delegates (including project team, project Advisory Committee, and other stakeholders) from around the globe who shared experiences, challenges, and opportunities for improving food environment research, policy, and practice, including advocacy for prevention NCDs in Africa. Delegates also received training on the INFORMAS’ *healthy food environment policy index (food-epi)* and *food prices modules*. Delegates also contributed to the identification of Research Priorities for Africa. This output has been published by Advances in Nutrition and may be accessed using [this link](#). The project team successfully implemented the second Africa Food Environment Research Network (FERN2021) as detailed [here](https://www.meals4ncds.org/en/fern2021/). <https://www.meals4ncds.org/en/fern2021/>

Implementation of project work packages

Table 7 List of policy recommendations arranged per work package

Level of Implementation	Recommendation
Food promotion	<ol style="list-style-type: none"> 1. Unhealthy food advertising on national broadcasting TV channels known to be watched by children should be regulated. These policies should specifically define permissible time when unhealthy food would be prohibited from airing on National Tv station, as done for alcohol advertisements. 2. Legislation that will compel all foods company that adverted foods product to declare nutrient composition exceeding the recommended threshold on advertisement and if possible, the associated health effect when consumed. 3. Food advertisement found to be misleading especially through the usage of inaccurate claims should be banned regardless of media platform or venue. 4. The usage of promotional strategies or techniques, such as including incentives, and popular children’s personalities or characters should be regulated on products directed or likely to appeal to children. 5. Laws that prohibit the marketing of unhealthy foods such as ultra-process foods and foods products with excessive levels of added sugar, salt, and fat during peak viewing times for children. 6. Enact and enforce a legislation regulating the promotion, sponsorship, advertisement and sale of food and drinks with excessive levels of added sugar, salt, and saturated fatty acids/trans-fat print and electronic media, and in settings where children frequent 7. Advertising within certain public places known to be frequented by children should be regulated by enacting zoning laws. These laws should specifically define zones that must be prohibited from siting of advertisements. 8. Government should pass legislation to regulate, the promotion and sponsorship, advertisement and sale of food and drinks with added sugars, and other nutrients of concern (saturated fats, salt) in school environment and other child-laden settings, enforceable with fine.

Food Provision	<p>Policy recommendations</p> <ol style="list-style-type: none"> 1. Establish and apply strong and comprehensive food-based and/or nutrient-based standards to the Ghana School Feeding Policy and Programme to provide a robust way of ensuring the nutritional quality of meals and beverages. 2. Use language that is enforceable in policy documents and include sanctions for non-compliance. 3. Address food safety and food emergencies in the school food programme. 4. Implement policies for regulating sold foods and other competitive foods and beverages within reach to pupils. 5. Implement policies for regulating and restricting marketing of unhealthy food and beverage within and around schools. <p>Implementation of policies and programmes</p> <ol style="list-style-type: none"> 6. Document standards and guidelines for the provision and sale of foods and make them available to school heads and other stakeholders. 7. Provide outlets for fresh drinking water and encourage the consumption of water as a replacement for SSBs. 8. Create an environment that encourages the consumption of healthy foods and adoption of healthy habits through the use of ‘nudges’. 9. Provide training to school heads, teachers, catering team, and other school stakeholders to model healthy behaviors.
CRM	<ol style="list-style-type: none"> 1. improving community knowledge of existing local efforts before new interventions are implemented, and securing resources (e.g. funding) to support efforts. 2. Efforts should focus on addressing the concerns of community members that might be present as well as misinformation about the potential impacts of various food environment interventions (e.g., concerns about what alternative livelihoods could support owners of local shops selling foods and drinks considered to be unhealthy foods to children). 3. Information dissemination in the communities should be done using influential figures such as religious leaders, political figures, community health workers, and local celebrities, as well as popular media platforms such as television, radio, and social media to convey simple but understandable messages about the links between unhealthy food environments and poor diets.

Academic outcomes and impacts

These include training of students & early career researchers. Students and early career researchers have received training throughout the project. A Postdoctoral Fellow, two Doctoral Students (from the University of Ghana and the University of South Carolina) have received support and mentoring from the MEALS4NCDs Project.

Project Staff, Students, and Associates



Dr. Phyllis Addo
Postdoctoral Fellow



Akua Tandoh
Project Associate
Doctoral student



Dr. Phyllis Ohene-Agyei
Project Associate



Gideon Senyo Amevinya
Monitoring and
Evaluation Specialist



Silver W. H. Nanema
Research Assistant



Wilhemina Quarpong
Project Associate

SUPPORTED GRADUATE STUDENTS



Krystal Rampalli
Ph.D Candidate
University of South Carolina



Zuwera Zankawah
Master of Public Health
University of Ghana



Akosua Pokua Adjei
Master of Public Health
University of Ghana

Training of field researchers and pilot testing of tools.

Aside from the early career researchers named above, a total of 37 research assistants (RAs) also received training on the study protocol, data collection tools, ethics and etiquette of field-based research involving humans supported the data collection aspects of the project. Field staff comprising six supervisors, 30 field data collectors, and four graduate students participated in a weeklong training – culminating in a pre-test exercise. Due to the COVID-19 related challenges, a second data collection exercise has to be carried out.

Twenty-five (25) field staff comprising 6 supervisors and 19 data collection officers have participated in a 2-day training on data collection tools ahead second round of data collection scheduled to begin on this month.



RA (Research Assistant) selected and trained during the project data collection

Media, publicity, disseminations and publications

Project website and social media handles:

The project website is constantly being updated with relevant information.

<https://www.meals4ncds.org/en/>

The FERN2020 and FERN2021 speakers' presentations have been uploaded to be viewed by the public:

<https://www.meals4ncds.org/en/fern2021/>

<https://www.meals4ncds.org/en/fern-meeting-2020/>

Aside the existing social media pages: twitter: <https://twitter.com/meals4ncds> and Facebook:

<https://facebook.com/meals4ncds>. A meals4ncds/fern **Youtube channel** has been created and all recordings from the first fern meeting uploaded onto the channel for public viewing.

The MEALS4NCDs blog <https://www.meals4ncds.org/en/category/blog/> contain articles by team members including the following.

- **Could food-related health taxes change food choices in Ghana?**
<https://www.meals4ncds.org/en/could-food-related-health-taxes-change-food-choices-in-ghana/>
- **Food parenting during the COVID-19 pandemic and beyond**
<https://www.meals4ncds.org/en/food-parenting-during-the-covid-19-pandemic-and-beyond/>
- **The COVID-19 Pandemic: potential long-term impacts on the nutritional status of Ghanaian children**
<https://www.meals4ncds.org/en/the-covid-19-pandemic-potential-long-term-impacts-on-the-nutritional-status-of-ghanaian-children/>

MEALS4NCDs Project in the News (Selected media and publicity: MEALS4NCDs Project)

	Title	Date	Website link
1.	Innovative NCDs prevention project launched	August 28, 2019	The Finder https://thefinderonline.com/feature/item/17358-innovative-ncds-prevention-project-launched
2.	The MEALS4NCDs Project Team holds a workshop around strengthening team's capacity to implement the project	August 31, 2019	MEALS4NCDs website https://www.meals4ncds.org/en/the-meals4ncds-project-team-holds-a-workshop-around-strengthening-teams-capacity-to-implement-the-project/
3.	New project to create healthy food environment launched ...as obesity among women increases	September 2, 2019	BFT Business and Financial Times https://thebftonline.com/2019/business/agribusiness/new-project-to-create-healthy-food-environment-launched-as-obesity-among-women-increases/
4.	A Conversation with Dr. Amos Laar: Food Policies and Obesity-related Projects	October 7, 2019	European Association for the Study of Obesity (EASO) https://easo.org/a-conversation-with-dr-amos-laar-food-policies-and-obesity-related-projects/
5.	MEALS4NCDs Prevention Project, the Dietary Transitions in Ghanaian/African Cities Projects, and others partner to deliver National Multi-Stakeholder Nutrition Forum and Ghana's 1st National Nutrition Conference	January 27, 2020	MEALS4NCDs website https://www.meals4ncds.org/en/meals4ncds-prevention-project-the-dietary-transitions-in-ghanaian-african-cities-projects-and-others-partner-to-deliver-national-multi-stakeholder-nutrition-forum-and-ghanas-1st-national-nu/
6.	MEALS4NCDs Project Launched University of Ghana	August 27, 2019	University of Ghana https://www.ug.edu.gh/news/meals4ncds-project-launched
7.	Intl team of researchers in Ghana launch innovative NCDs prevention project	August 27, 2019	Starr Fm https://starrfm.com.gh/2019/08/intl-team-of-researchers-in-ghana-launch-innovative-ncds-prevention-project/
8.	UG School of Public Health launches MEALS4NCDs Project	August 15, 2019	Prime News Ghana https://www.primenewsghana.com/general-news/ug-school-of-public-health-launches-meals4ncds-project.html
9.	UG School of Public Health launches MEALS4NCDs Project	August 15, 2019	Ghana Summary https://ghanasummary.com/primenewsghana/178917/ug-school-of-public-health-launches-meals4ncds-project
10.	Obesity and Chronic Diseases Fights School Children – Dr. Mrs. Wiafe Addai	August 17, 2019	My Africa Today https://myafricatoday.com/index.php/2019/08/17/obesity-and-chronic-diseases-fights-school-children-dr-mrs-wiafe-addai/
11.	International Team of Researchers, Led by the University of Ghana, Launch an Innovative NCDs Prevention Project	August 25, 2019	African Eye Report https://africanyereport.com/international-team-of-researchers-led-by-the-university-of-ghana-launch-an-innovative-ncds-prevention-project/
12.	Watch What your Children Eat – Dr. Mrs. Beatrice Wiafe Addai	August 17, 2019	TopNews Ghana Watch What your Children Eat – Dr. Mrs. Beatrice Wiafe Addai https://topnewsgh.com/2019/08/17/watch-what-your-children-eat-dr-mrs-beatrice-wiafe-addai/
	FERN RELATED NEWS ITEMS		

13.	1st Africa Food Environment Research Network (FERN) meeting held in November 2020	Jan 19, 2021	INFORMAS https://www.informas.org/2021/01/19/1st-africa-food-environment-research-network-fern-meeting-held-in-november-2020/
14.	VIRTUAL MEETING: 1st Africa Food Environment Research Network Meeting	November 9, 2020	PAEPARD http://paepard.blogspot.com/2020/11/virtual-meeting-1st-africa-food.html
15.	MEALS4NCDs Project Launches 1st Africa Food Environment Research Network	November 22, 2020	Business Week Ghana https://businessweekghana.com/2020/11/22/meals4ncds-project-launches-1st-africa-food-environment-research-network/
16.	MEALS4NCDs Project Launches 1st Africa Food Environment Research Network	November 22, 2020	Ghana News Online https://ghananewsonline.com.gh/meals4ncds-project-launches-1st-africa-food/

Media Coverage consultative meeting on the development of policy bundle organized by the Ministry of Health and the MEALS4NCDs Project

ID	Title/focus	Date	Web-link
1	Food policy: Public health expert lauds MDAs for allowing inputs from academics	Oct 3 2021	https://www.newswiregh.com/food-policy-public-health-expert-lauds-mdas-for-allowing-inputs-from-academics/
2	Public policy initiatives : Public health expert calls for collaboration among stakeholders, academics	Oct 3 2021	https://www.abcnewsgh.com/public-policy-initiatives-public-health-expert-calls-for-collaboration-among-stakeholders-academics/
3	UG professor-lauds MDAs for opening doors to academics to contribute to public-policy	Oct 3 2021	https://ghananewspress.com/ug-professor-lauds-mdas-for-opening-doors-to-academics-to-contribute-to-public-policy/
4	G Lecturer Lauds some Ghanaian MDAs for opening Doors for Inputs on Public Policy Initiatives	Oct 3 2021	https://newswatchgh.com/ug-lecturer-lauds-some-ghanaian-mdas-for-opening-doors-for-inputs-on-public-policy-initiatives/
5	Ghana-to-consider-mandatory-food-and-nutrition-labelling-among-other-interventions-to-improve-diets-address-non-communicable-diseases	Oct 3 2021	https://business24.com.gh/2021/10/06/ghana-to-consider-mandatory-food-and-nutrition-labelling-among-other-interventions-to-improve-diets-address-non-communicable-diseases/
6	MP leads advocacy against diet-related non-communicable diseases	Oct 8 2021	https://www.newswiregh.com/mp-leads-advocacy-against-diet-related-non-communicable-diseases/
7	Government-championing-food-environment-transformation-in- Ghana	Oct 3 2021	https://ghananewspress.com/government-championing-food-environment-transformation-in-ghana-moh/
8	Government championing food environment transformation in Ghana – Dr. Odame Ankrh	Oct 5 2021	https://www.newswiregh.com/government-championing-food-environment-transformation-in-ghana-dr-odame-ankrah/
9	Government championing food environment transformation in Ghana – Health Ministry	Oct 5 2021	https://www.abcnewsgh.com/government-championing-food-environment-transformation-in-ghana-health-ministry/
10	Ghana to roll-out bundle of food-related health policies – Health Ministry	Oct 10 2021	https://newswatchgh.com/ghana-to-roll-out-bundle-of-food-related-health-policies-health-ministry/
11	Bundling Ghana’s food-related health policies could improve performance of School Feeding Programme	Oct 3 2021	https://www.newswiregh.com/bundling-ghanas-food-related-health-policies-could-improve-performance-of-school-feeding-programme/

Media Coverage: MEALS4NCDs-supported events: Launch of Healthier Diets 4 Healthy Lives Project.

ID	Title/focus	Dated	Web-link
1	Healthier Diets for Healthy Lives Project launched in Accra	March 11 2022	https://www.newswiregh.com/healthier-diets-for-healthy-lives-project-launched-in-accra/
2	Ghana tackles non-communicable diseases through healthier diets	March 11 2022	https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Ghana-tackles-non-communicable-diseases-through-healthier-diets-1488239
3	Health Minister launches Healthier Diets for Healthy Lives Project in Accra YouTube	March 11 2022	https://www.youtube.com/watch?v=qiAX1LxVLqQ
4	Suboptimal Diets contributes to various diseases-Hon. Agyeman Manu	March 11 2022	https://www.dailydemocratonline.com/suboptimal-diets-contributes-to-various-diseases-hon-agyeman-manu/
5	All you need to know about Ghana's policy bundle initiative on healthier diets	March 16 2022	https://www.newswiregh.com/all-you-need-to-know-about-ghanas-policy-bundle-initiative-on-healthier-diets/
6	Ministry of Health launches a 'double-duty policy bundle initiative' - Why Ghana embarks on such initiative	March 16 2022	https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Ministry-of-Health-launches-a-double-duty-policy-bundle-initiative-Why-Ghana-embarks-on-such-initiative-1492034
7	Kwaku Agyeman-Manu launches Healthier Diets for Healthy Lives Project to enhance health sector	March 12 2022	https://www.ghanaweb.com/GhanaHomePage/health/Kwaku-Agyeman-Manu-launches-Healthier-Diets-for-Healthy-Lives-Project-to-enhance-health-sector-1489115
8	Health Minister Launches HD4HL Project	March 11 2022	https://peacefmonline.com/pages/local/health/202203/462111.php

Advocacy, policy and practice, health and social impact

Policy briefs

Three policy briefs on Food Promotion, Food Provision and Community Readiness were developed from evidence generated from the MEALS4NCDs project. These briefs tailored to policymakers in Ghana, present a synthesis of Ghana's food environment and provide recommendations regarding appropriate policies to implement to make Ghana's food environment healthier and more equitable. The policy/research briefs developed are presented below:

- Improving the nutritional quality of sold and provided foods in Ghanaian schools: priority recommendations for policymakers and key stakeholders – Policy Brief.
- Restricting the marketing of unhealthy food to Ghanaian children – Policy Brief.
- How ready are community stakeholders to address marketing and availability of unhealthy foods and drinks in and around basic schools in Greater Accra region? – Research Brief.

These briefs were used to facilitate consultative policy meetings, and advocacy as outlined below.

Consultative meeting for policy bundle development, and advocacy toward Sugar Sweetened Beverage Tax in Ghana.

The Ministry of Health (MOH), with support from MEALS4NCDs Project, and the Coalition of Actors for Public Health Advocacy (CAPHA) convened a meeting on the 30th of September, 2021 in Accra, to explore the possibility of developing a food policy bundle for healthier diets in Ghana. This was in response to the valuable data produced from the MEALS4NCDs project. Over sixty relevant stakeholders from Academia, Government institutions, United Nations agencies, and Civil Society Organizations (CSOs) participated in the meeting. Country experiences in developing nutrient labelling system were reviewed prior to deliberation on the policy bundles. The options considered for the development of the policy package included “food composition policies, food marketing policies, food labelling policies, food retail policies, fiscal policies, food provisioning and public procurement policies. These policies when implemented as individual policies show promising results, and will even be more impactful when delivered as a cluster of interventions. As part of the meeting, delegates also received updates from previous and ongoing research projects and initiatives in Ghana, and update on the currently being developed Food-Based Dietary Guidelines FBDGs for Ghana. There were also discussions to update the existing Food database for Ghana to provide more specific nutrient information in accordance with Ghana's food guidelines. The MEALS4NCDs contributed to and was acknowledged in Ghana's Food Systems Dialogues outputs.

Data from the MEALS4NCDs Project, and other earlier local food environment studies laid the foundation for the “Healthier Diets 4 Healthy Lives (HD4HL) Project”. The project aims to build evidence and mobilize multi-stakeholder actions toward a policy bundle for healthier and more equitable consumer food environments that reduce the double burden of malnutrition in Ghana. The policies in the bundle include front of pack labelling policies, marketing restrictions policies, fiscal policies, and public food procurement policies, all of which will be undergirded by a fit-for-local purpose nutrient profiling model.



The project generated a wide range of evidence, which are being used by advocacy groups -Ghana NCD Alliance, Vision for Alternative Development (VALD), Institute of Leadership and Development (INSLA), Ghana Academy of Nutrition and Dietetic (GAND), Coalition of Actors for Public Health Advocacy (CAPHA) - to advocate for the review of policies and guidelines in relevant ministries and local government, and practices among nutrition and health stakeholders.

The partnerships established during the MEALS4NCDs Project facilitated the development of an advocacy proposal. “Creating a favourable environment and stakeholder buy-in for food-related fiscal policies in Ghana”. The project aims to:

- Identify a realistic legal pathway to enact SSB tax in Ghana.
- Generate, curate, and avail evidence to support advocacy, scholar activism, and to counter opposition from food & beverage industry actors.
- Strengthen the coalition-building, stakeholder sensitization, media advocacy, policy advocacy, and evidence dissemination capacity of coalition members toward SSB tax advocacy.
- Implement communication and media advocacy in support of the most appropriate and feasible pathway to enact an SSB tax in Ghana.

The evidence and recommendations from the MEALS4NCDs Project if utilized, cumulatively will contribute to mitigating unhealthy food consumption, and ultimately improving Ghana’s food environment. This will result in a well-nourished population with better capacity for the cognitive development and participation in the labour market which will eventually impact positively on economic development.

Publications

The manuscript for the MEALS4NCDs study protocol has been published, and so are two other manuscripts. The manuscripts are open access:

- Laar A, Kelly B, Holdsworth M, Quarpong W, Aryeetey R, Amevinya GS, Tandoh A, Agyemang C, Zotor F, Laar ME, Mensah K. Providing measurement, evaluation, accountability, and leadership support (MEALS) for non-communicable diseases prevention in Ghana: project implementation protocol. *Frontiers in nutrition*. 2021:504. <https://doi.org/10.3389/fnut.2021.644320>
- Laar AK, Addo P, Aryeetey R, Agyemang C, Zotor F, Asiki G, Rampalli KK, Amevinya GS, Tandoh A, Nanema S, Adjei AP. Perspective: Food Environment Research Priorities for Africa: Lessons from the Africa Food Environment Research Network. *Advances in Nutrition*. 2022 Mar 7. <https://academic.oup.com/advances/advance-article-abstract/doi/10.1093/advances/nmac019/6543693>
- Akua Tandoh RA, Charles Agyemang, Michelle Holdsworth, Gershini Asiki, Francis Zotor [...] Amos Laar. The Africa Food Environment Research Network (FERN): From Concept to Practice (Accepted; *Global Health Promotion Journal*)

Three other manuscripts currently undergoing peer-review have been submitted to a Special Issue to be published by *Frontier in Public Health*.

- Akosua Pokua Adjei, Gideon Amevinya, Wilhemina Quarpong, Akua Tandoh, Richmond Aryeetey, Michelle Holdsworth, Charles Agyemang, Francis Zotor, Matilda E. Laar, Kobby Mensah, Phyllis Addo, Dennis Laryea, Gershini Asiki, Daniel Sellen, Stefanie Vandevijvere, Amos Laar Availability of healthy and unhealthy foods in modern retail outlets located in selected districts of Greater Accra region, Ghana

- Gideon S. Amevinya, Stefanie Vandevijvere, Bridget Kelly, Seth K. Afagbedzi, Richmond Aryeetey, Wilhelmina Quarpong, Akua Tandoh, Silver Nanema, Charles Agyemang, Francis Zotor, Matilda E. Laar, Kobby Mensah, Dennis Laryea, Gershim Asiki, Michelle Holdsworth, Amos Laar Extensive advertising of unhealthy foods around primary and junior high schools in the Greater Accra Region, Ghana
- Silver Nanema, Akosua Adjei, Gideon Amevinya, Amos Laar “Some are healthy some are not...” Accra-based food retailers’ characterization of the healthiness of the food they sell.

Other manuscripts are at different stages of the drafting and publication process (see table below).

Table 8: List of manuscripts expected for publication from the project

Manuscript Theme/Topic	Planned
▪ Mapping of outdoor food advertising and outlets within and around public sector basic schools.	✓
▪ Assessing the healthiness of outdoor food advertising within and around public sector basic schools.	✓
▪ Assessment of promotional strategies used in supermarkets around public sector basic schools.	✓
▪ Post purchase interviews – the shopping experience of parents patronising supermarkets around public sector basic schools.	✓
▪ An exploration of children’s nutritional knowledge, food choices, and awareness of school food and nutrition policies/programmes and food marketing strategies used within and around their schools.	✓
▪ What are Ghanaian children’s perceptions of their school food environments?).	✓
▪ Assessing the nature and extent of unhealthy foods and non-alcoholic beverage promotion on Ghanaian television.	✓
▪ A review of government of Ghana policies and programmes on food provision in public sector basic schools.	✓
▪ Monitoring and evaluation of the implementation of food provision policies and programmes in public sector basic schools.	✓
▪ Food safety, water, sanitation and hygiene practices of food vendors and school meal providers in and around public sector basic schools.	✓
▪ Assessing the healthiness/nutritional quality of foods provided/sold to children within public sector basic schools.	✓
▪ Discriminant validity of select nutrient profiling models/food classifications systems (NOVA, WHO, INFORMAS) in the assessment of the healthiness of foods provided and sold within public sector basic schools.	✓
▪ Barriers and facilitators to implementing food provision programmes in Ghanaian public sector schools: qualitative interviews with school head, caterers, and commercial food vendors	✓
▪ Net mapping of the key actors in nutrition, health, and food environment landscape in Ghana.	✓
▪ Assessing community readiness to accept, and capacity to implement interventions to improve children’s food environment in the Greater Accra region of Ghana.	✓
▪ How healthy are our supermarkets? Availability of healthy and unhealthy, ultra-processed foods in supermarkets of selected districts of Greater Accra region, Ghana.	✓

Unpublished Conference Abstracts (n = 8) Submitted to ICN2022 and ICO2022

1. Availability of healthy and unhealthy foods in modern retail outlets located in selected districts of Greater Accra region, Ghana

Akosua Pokua Adjei¹, Gideon Amevinya¹, Wilhemina Quarpong¹, Akua Tandoh¹, Richmond Aryeetey¹, Michelle Holdsworth², Charles Agyemang³, Gershim Asiki⁴, Stefanie Vandevijvere⁵, Amos Laar¹

2. Extensive advertising of unhealthy foods around primary and junior high schools in the Greater Accra Region, Ghana

Gideon S. Amevinya¹, Stefanie Vandevijvere², Bridget Kelly³, Richmond Aryeetey¹, Wilhelmina Quarpong⁴, Akua Tandoh¹, Kobby Mensah⁵, Gershim Asiki⁶, Michelle Holdsworth⁷, Amos Laar¹

3. How ready are community stakeholders to implement interventions to address the marketing and availability of unhealthy foods and beverages in and around schools in the Greater Accra Region of Ghana?

Akua Tandoh¹, Amos Laar¹, Rebecca Pradeilles², Agnès Le Port³, Hibbah Osei-Kwasi^{2,4}, Gideon Amevinya¹, Richmond Aryeetey¹, Charles Agyemang⁵, Michelle Holdsworth³

4. “Some are healthy some are not...” Accra-based food retailers’ characterization of the healthiness of the food they sell.

Silver Nanema¹, Akosua Adjei¹, Gideon Amevinya¹, Amos Laar¹

5. Sanitation, food safety, and hygiene are suboptimal in public sector basic schools in the Greater Accra Region, Ghana: field observations and perspectives of food service providers

Phyllis Ohene-Agyei¹, Amos Laar¹, Michelle Holdsworth², Gideon Amevinya¹, Richmond Aryeetey¹, Stefanie Vandevijvere³, Kobby Mensah¹, Charles Agyemang⁴, Daniel Sellen⁵, Dennis Laryea⁶

6. Addressing multiple forms of malnutrition through double-duty actions: Evidence-to-policy action from Ghana

*Amos Laar¹, Emmanuel A Odame², Percy A Agyekum³, Mary Mpereh⁴, Sebastian N Sandaare⁵, The DFC/MEALS4NCDs Projects⁶

7.

ICO2022-ABS-1553

What do Ghanaian parents know about healthy eating, and school food and nutrition policies?

Akosua Adjei¹, Silver Nanema¹, Gideon Amevinya¹, Akua Tandoh¹, Amos Laar¹ and MEALS4NCDs Project Team

¹Population, Family and Reproductive Health, University of Ghana, Accra, Ghana

Preferred presentation method: Oral

Early Career Researchers: Yes

8

ICO2022-ABS-1415

Monitoring food environments for healthy, sustainable, and accountable food systems: INFORMAS Implementation Lessons from Africa

Amos Laar¹, Gershim Asiki², Mark Spires³, Adama Diouf⁴, Peter Delobelle⁵, Michelle Holdsworth⁶, Stefanie Vandevijvere⁷

Collaborations

Currently the MEALS4NCDs original collaborator remain the same(*), however, through FERN the total number of collaborators have increased. Currently FERN is led by the University of Ghana, in collaboration with the following:

- The University of Health and Allied Sciences (UHAS)*
- Ghana Health Service (GHS)*
- African Population and Health Research Centre (APHRC), Kenya*
- French National Research Institute for Sustainable Development (IRD), France*
- University of Amsterdam, The Netherlands*
- The University of Toronto, Canada*
- The Scientific Institute of Public Health (Sciensano), Belgium*
- The International Network for Food and Obesity/Non-communicable Diseases (NCDs) Research, Monitoring and Action Support (INFORMAS) – FERN Collaborator
- The Drivers of Food Choice Program (DFC) – FERN Collaborator
- Réseau de Recherche sur les Politiques et les Systèmes Alimentaires en Afrique de l'Ouest (REPSAO) – FERN Collaborator
- Chronic Disease Initiative for Africa (CDIA) – FERN Collaborator
- Agriculture, Nutrition and Health Academy (ANH) – FERN Collaborator
- UNESCO Chair in World Food Systems – FERN Collaborator
- Food Prices for Nutrition Project – FERN Collaborator

The newest of such collaborations is the University of Cape Town –led FOOD SAMSA Project - Food Environments in Africa: Addressing Malnutrition using a Syndemics Approach – FERN Collaborator.

Problems and challenges

Expansion of project scope, and impact of COVID-19 pandemic on project timelines and budget

Project Support Staff cost of USD6,087.00 is lost to the pandemic. This expenditure covering salaries for project support staff was made from March 2021 to August 2021 - during the COVID-19 pandemic. However, personnel were only 50% efficient during the stated period.

Unbudgeted/unexpected research expenses total USD 25,450.00. These extra expenditures have been precipitated by two things. First, the significant change in study sample size (number of schools changed from 9 to 200). Second, the COVID-19 pandemic led to extra expenditures as explained below.

Refresher training of first 37 Fieldworkers for Wave 1, and recruitment of a new set of 25 Fieldworkers for the second Wave of data collection.

- Infection prevention/control and measures to limit the transmission and safeguard fieldworkers from contracting COVID-19 were put in place by the project team. These measures originally not budgeted for were necessitated by the COVID-19 pandemic. The project purchased Personal Protective Equipment such as Hand sanitizer, Face-shields, nose masks, disposable gloves as well as a thermometer gun, for field workers (for Wave 1 and Wave 2 data collection).
- Transcription of interviews that were initially planned to be conducted one-on-one but switched to virtual interviews due to COVID-19. 200 audio files of interviews had to be transcribed at a cost of USD17.5 per file.
- Incentivizing participation. Incentives were procured to motivate pupils, school head teachers, and district education directors, and encourage their participation in the study's data collection activities during the pandemic. These incentives included MEALS4NCDs-branded souvenirs and personal protective equipment for participating school heads pupils and district education directors. For each pupil that took part in the Focus Group Discussion, three (3) MEALS4NCDs-branded exercise and a T-shirt were given. The participating school Head teachers had one (1) hand sanitizer and three (3) MEALS4NCDs branded exercise books. The district directors were given MEALS4NCDs branded Polo-shirts and exercise books (as shown below).



Administrative reflections and recommendations

Overall, we are very satisfied with the administration of the project – both at the University of Ghana, and with our engagement with the Funder. Over the past three years, we have very fruitful engagement with the IDRC-designated Technical Officer and staff. At different phases of the project, we receive valuable inputs and guidance (both technical and administrative) from them. To mention a few, their peer-review queries, regularly-schedule update meetings, and flexibility with respect to use of funds (including flexible funds reallocation across budget of up to 10%) significantly improved our burn rate. We value this and encourage such flexibility in future grants. As noted earlier, the project was implemented during an extremely challenging times – due to the COVID-19 pandemic. The negative impact of the pandemic on product expenditures is outlined in the previous section. Also due to significant change in the scope of the project, significant unbudgeted/unanticipated expenditures were incurred by the project – due to change in study sample size (number of schools changed from 9 to 200). IDRC may consider providing additional financial support to grantees who face such real challenges.

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Annexes

Annex 1: Publications and initial research outputs

Annex 2: Brochures of MEALS4NCDs Project events, and related activities