UDS International Journal of Development [UDSIJD]
Special Issue, September, 2019
http://www.udsijd.org
ISSN: 2026-5336

IMPACT PATHWAYS FROM AGRICULTURAL POLICY TO IMPROVED NUTRITION OUTCOMES: THE CASE OF THE PROMISE PROJECT IN NORTHEASTERN GHANA

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Abstract

This paper strives to add to continuing effort at many establishments envisioned at determining urgent knowledge openings, outlining the finest research slants needed to plug those gaps, and investigating how to improve policy and programme implementation in agriculture with comprehensive empirical evidence of 'what works' for improved nutrition outcomes under which circumstances and why. The study attempted to do this by specifically examining CARE International's Linking Initiatives, Stakeholders and Knowledge to Achieve Gender-Sensitive Livelihood Security (LINKAGES) programme (PROMISE Ghana). Analysis was focused on the Women's Empowerment in Agriculture Index (WEAI) and the Logical framework for assessing impact of agricultural interventions on nutrition (as proposed by Masset et al. 2011). Findings of the paper point to evidence of improved nutrition; reinforced and expanded livelihoods; improved food sources and diversity; expansion and protection of key assets; shifts in gender dynamics that have fostered and promoted women's agency etc. These findings to a large extent give endorsement to the Framework for Action that emerged from the Second International Conference on Nutrition that culminated in the launch of the UN Decade of Action on Nutrition (2016–2025). The findings also strongly layout rigorous empirical information to inform policymakers in Ghana on what kinds of agriculture to invest in (through research or programming) that will have positive benefits for nutrition outcomes and livelihood security, particularly among mothers and children – thus, underscoring the importance of improved policy targeted at making agriculture work for nutrition in Ghana.

Keywords: Nutrition, Ghana, Agricultural Policy, Livelihood Security

Introduction

Ventures in agriculture are extensively perceived as a "critically important opportunity for reducing malnutrition" (Herforth et al., 2012). Development agents in the world are being called upon to give premium to "unleashing" (IFPRI, 2012), "leveraging" (Pell at al., 2011), "reshaping" (Fan and Pandya-Lorch, 2012), or "realizing" (IFAD, 2011) the openings agriculture presents for enhancing nutrition and health. Development institutions have been pretty much quick to respond by bringing improved budgetary shares to shoulder the agriculture sector since the middle parts of 2000, drawing back the precipitous regression of decades earlier (OECD 2012). A specified intention of the restored focus was the inspiration to make agriculture policies or programmes "nutrition-sensitive" (BMGF, 2012; USAID, 2011), or in succinct terms making "agriculture work for nutrition" (FAO, 2012). In 2016, the UN's Agenda 2030 sought among other SDGs to eliminate extreme poverty and hunger. Endorsement was also given to the UN Decade of Action on Nutrition (2016–2025). Sterling milestones that underscore the importance of improved policy targeted at making agriculture work for nutrition are reflected in the G7's commitment to prioritizing nutrition as well as the G20's stress on the need to give prominence to innovations in agriculture for sustainable development. The larger interrogation worth academic thought and reflection is, how?

Alongside the milieu of requests for superior responsibility, many development partners and

governments are requesting for evidence-based programming (Mallet et al., 2012). This has precipitated renewed interest in precise practical information that can guide policy makers on the kinds of agriculture worth investing (by way of research or programming) to bring about encouraging outcomes for nutrition and security of livelihoods, especially for children and mothers. The quest has thus far been pretty dismal. According to Thompson and Amoroso (2010), there is still "insufficient understanding of the evidence base on how best to achieve this potential." Undeniably, a review of 23 studies of agriculture involvements under the auspices of DFID established "no evidence of impact on prevalence rates of stunting, wasting and underweight among children under five." (Masset et al., 2011) Consequently, understanding of the impact of agriculture on nutrition can be condensed in the arguments of Hawkes et al. (2012): "Despite the clear potential for agricultural change to improve nutrition in low and middle income countries, the evidence base for this relationship is poor. Topical methodical appraisals of studies which have evaluated agricultural interventions for improving nutrition reveal little strong evidence of impact, and a need for more and better designed research."

This paper strives to add to continuing effort at many establishments envisioned at determining urgent knowledge openings, outlining the finest research slants needed to plug those gaps, and investigating how to improve policy and programme implementation in agriculture with comprehensive empirical evidence of 'what works' for improved nutrition outcomes under which circumstances and why. The study attempted to do this by specifically examining CARE International's *Linking Initiatives, Stakeholders and Knowledge to Achieve Gender-Sensitive Livelihood Security (LINKAGES)* programme (PROMISE Ghana). Analysis was focused on the Women's Empowerment in Agriculture Index (WEAI) and the Logical framework for assessing impact of agricultural interventions on nutrition (as proposed by Masset et al. 2011).

Country/Problem Context and Rationale for Research Project

Poverty's impact in the intricate association between malnutrition and food security can never be exaggerated. After over 20 years of political steadiness and speedy growth of the economy, the nation has come into view as a prime mover in the West African sub-region. Notwithstanding Ghana's comparative prosperity, remnants of deprivation persist, predominantly in the five regions of the north. This spatial unit currently accounts for about 40% of people living under the poverty line in Ghana and also do have significantly higher prevalence of food insecurity, ranging from 11% to 34% (GSS, 2014).

The Government of Ghana's (GoG's) Coordinated Programme of Economic and Social Development Policies (CPESDP, 2017-2024), indicates that Ghana has made substantial headway in raising the nutritional status of children. The share of stunted children in the country dropped from 33% in 1993 to 19% in 2014, while the prevalence rate of underweight children declined from 23% to 11%. The prevalence rate of wasting also dropped from 14% to 5% in 2014. In recent times, the nation has not endured food insecurity because of improved food production. Domestic production of selected staple food crops continues to exceed national demand, reflecting surpluses. Despite this positive outcome, incidences of hunger linger in some pockets of the country. There is an inappropriately high child malnutrition and an amplified incidence of diet-related non-communicable diseases in northern Ghana. There is also a prevalence of nutritional deficiencies, a weak Food and Nutrition Security (FNS) institutional framework and coordination, and a weak food control system (Republic of Ghana, 2017).

To safeguard food security and prop up good nutrition, interventions being pursued under the CPESDP include: instituting measures to prevent food losses; promoting the production of and utilization of locally grown and nutrient-rich food; strengthening early warning and emergency preparedness systems; developing and implementing a nutrition strategy, which adopts a life-cycle approach to reduce malnutrition at all levels; reviewing and scaling up the Regenerative Health

and Nutrition Programme RHNP); eliminating child and adult overweight and obesity; and promoting research and development in Food and Nutrition Security (Republic of Ghana, 2017). The last policy direction represents the area this research is geared at making a contribution.

This contribution is certainly not out of place as the World Bank has observed over time that, while improved agricultural productivity is an invaluable development goal in its own right "merely producing more food does not ensure food security or improved nutrition." (Herforth et al., 2012). FAO (2012) correspondingly recognizes that "agriculture interventions do not always contribute to positive nutritional outcomes." Acknowledging that growing more food is necessary but usually not sufficient to achieve good nutrition and health primes directly to hypothesis-building around what else might be obligatory. What else is required from the context of this research is to obtain empirical evidence to ascertain to what extent agricultural policies have influenced nutrition outcomes in chronically food insecure northeastern Ghana.

Research Project Context

The LINKAGES (PROMISE Ghana) programme was a 4-year (2012-2016) multi-country initiative of CARE Canada with funding support from the Department of Global Affairs of Canada (GAC). PROMISE was CARE Ghana's involvement in the realization of the goal of the programme *"Improved livelihood security and resilience for vulnerable women, girls, men and boys in Bolivia, Ethiopia, Ghana and Mali*". PROMISE in Ghana sought the following intermediate outcomes: 1) women and girls increase consumption of processed soya and cowpea; 2) vulnerable women and girls equitably participate in and benefit from soya and cowpea value chains; and 3) District Assembly processes in the two districts support women-led multi-stakeholder platforms for cowpea and soya beans.

In Ghana PROMISE was implemented in 20 communities in two districts (Garu-Tempane and East Mamprusi) in the Upper East and Northeast regions respectively, reaching out to 4,460 direct female beneficiaries. Two local partners; Presbyterian Agricultural Station of Garu (PAS-G) and Partners in Rural Empowerment and Development of Nalerigu (PARED), supported the implementation of the programme in both districts respectively. The District Department of Agriculture and the Savannah Agricultural Research Institute (SARI) were the main collaborators providing technical support to beneficiary communities in soya and cowpea production as well as value chain development. Ghana Health Service (GHS) was instrumental in providing technical support and education on the nutritional benefits of soya and cowpea and how these were pivotal for improved nutrition outcomes. The two District Assemblies (Local Governments) were also engaged by CARE Ghana to ensure the creation of the enabling environment for women to get involved in decision-making on issues affecting their access to resources to improve their livelihoods.

Research Objectives

The general objective of this study was to assess the PROMISE project to establish if nutrition outcomes were achieved and whether there was a good fit between these achievements and national nutrition and agricultural policy goals. Specifically, the study sought the following:

1. To investigate the extent to which the PROMISE project contributed to increased consumption from increased food production of soya and cowpea (*production-for-own-consumption*) for improved nutrition;
2. To ascertain if the project was successful in increasing income from the sale of agricultural commodities (*production-for-income*) and how this translated to improved nutrition in the household;
3. To analyze the extent to which empowerment of women agriculturists has taken place through the efforts of the project; and
4. Finally, to proffer recommendations on agriculture and nutrition policies for improved household level consumption of soya and cowpea, individual food and nutrient intake and nutrition status.

Methodology

This research made use of the 2012 baseline survey report of the PROMISE Project that is statistically representative of the project beneficiaries in the two

districts as sampling frame (a good basis to replicate process issues and process outcomes). The survey was conducted using a two-stage sampling strategy – where we first obtained a list of all the enumeration areas classified during the baseline survey; we then randomly sampled households from the enumeration areas listed during the second stage. The rationale was to mirror as much as closely the baseline before the commencement of the project (ex-ante). In drawing our survey sample, we had specific focus on rural households to avoid the likelihood of misclassifying women as 'disempowered' if they have no business with agriculture. We also excluded rural households without adult female decision makers and those that were not administered the WEAI module (as was the case for the project baseline). Households with incomplete WEAI indicators were further excluded because all 10 indicators are required to calculate the WEAI.

Given that a longitudinal study of households was necessary for the study, we collected panel data to enable us measure significant issues about productivity, income and outcomes of project interventions as well as women's empowerment over time. A mixed methods design was thus adopted for the study. The rationale being that this approach is helpful when there is need for the use of multiple data collection tools and techniques to enhance data triangulation for improved validity and reliability. Methods of data collection comprised in-depth key informant interviews, FGDs, questionnaire administration and non-participant observation.

Ten communities in total were covered by the study in both districts. A total of 250 households constituted the sample size for the study. The proportionate sampling technique approach, which distributes sample sizes into proportions based on a given sample, was used. With the proportionate approach, the sample size of each community was equivalent to the relative population size of the given community. Almost 97% (representing 243) of the baseline participants were available for the post-ante study. Only a total of seven respondents from both districts were replaced by collective members at the time of the interview. The list of respondents was obtained from CARE Ghana. The list (i.e. sampling frame) was used by the data enumerators at the community level to locate the respondents.

Contextual factors like agency, structure and relations and their impact on beneficiaries were explored by using a variety of qualitative participatory tools. To adequately capture information on norms that affect women's empowerment and power relations, principally as they relate to women's ability to actively engage in and have control over agricultural production and marketing activities, qualitative tools are most suited. The qualitative tools were designed with the overt purpose of helping to illuminate better understanding and interpretation of quantitative indicators and to help identify predominant factors critical to the success of PROMISE, including markers of progress defined by PROMISE management. Additional to topical outlines, participatory tools included ranking exercises that captured the perceived effectiveness of the project's activities, daily activity records for women (where available), wealth ranking matrix, or social gender mobility mapping tools depending on the context were deployed.

The participatory approaches also helped to elicit information from project participants regarding their views of what is most relevant and valuable. The focus groups for this purpose were: 1) Women VSLA members, 2) spouses of women VSLA members, 3) women non-members, 4) Community-based Extension Agents, 5) Male gender champions, 6) out-of-school girls, and 7) Members of Nutrition Clubs.

There was content analysis of qualitative data, this involved developing a matrix of responses from all interviews and discussions and thematising them for patterns to explain quantitative results. Quantitative data processing and analyses was done using SPSS Version 20. Some results were also compared to international and national statistics to establish variances and associations. To measure women's empowerment, the USAID Feed the Future's WEAI model was used.

Results and Findings

Study Objectives and Findings

The First Objective of the study was:

- ✓ To investigate the extent to which the PROMISE project contributed to increased consumption from increased food production

of soya and cowpea (production-for-own-consumption) for improved nutrition.

Dietary Diversity and Intra-Household Access

Typically the sampled project beneficiary (the main food preparer) was asked to report on 12 different food groups consumed by any member of the household in the past 24 hours (the day and night prior to the interview). The result of this questioning produces the Household Dietary Diversity Score (HDDS) between 0 and 12, with a higher score representing better access to diverse food groups. The next step is to establish if any member of the household consumed each of the 12 food groups - the main food preparer was questioned if all, some, or no female member of the household over the age of 15 ate the food item. The responses in respect of "all women" or "some women" translate into an intra-household access (IHA) score between 0 and 12, with an elevated score indicating better access to diverse food groups.

At the time of the post-ante survey, the mean HDDS across both districts ranged between 4.2 and 4.8 groups, suggesting that households are on average accessing between four to about five different types of food on a daily basis (Table 1). There was an increase in dietary diversity in both districts, especially so for female-headed households at Garu-Tempane District (GTD). Over the period of the project, access to food diversity between women in male and female headed households progressed from inequitable at baseline to almost equitable status.

In general terms, the post-ante survey results amply suggest that food access for women increased in comparison to baseline, strongly indicating that females of 15+ years consume more food groups than other members of the household. Most respondents confirmed that the project was instrumental in diversifying their consumption of more vegetables (particularly cowpea leaves) and less common ones like moringa.

Table 1: Food and Nutrition Security

Indicator	**Districts**	
	Baseline	**Endline**
Mean Household Dietary Diversity Scores		
All Households	4.3	4.6
FHHH	3.9	4.2
MHHH	4.3	4.8
Mean Women's Intra-Household Food Access		
All Households	4.2	4.0
FHHH	3.8	3.9
MHHH	4.3	4.1

Food Consumption Groups

Based on the consumption of different food groups seven days prior to the survey, the food consumption score (FCS) was calculated by measuring the frequency of consumption weighted by the relative nutritional density of the food groups in terms of energy, protein, micronutrients and fat content. The eight (8) main food groups comprised: 1) main staples (cereals and tubers); 2) pulses (beans, peas, groundnuts); 3) vegetables; 4) fruits; 5) meat and fish; 6) milk and milk products; 7) sugar; and 8) oil. Milk, fish and meat have the highest nutritional weighting (4), next are pulses (3).

Table 2: Average Days in the Past Week (7 Days) Households Consume Food Groups

Food Group	Average number of days consumed out of one week in lean period								
	FHH	MHH	**All**	**FHH**	**MH**	**All**	**FHH**	**MH**	**All**
Cereals and tubers	6.79	6.77	6.78	6.96	6.89	6.91	6.37	6.67	6.65
Vegetables	5.96	6.58	6.48	5.65	6.25	6.11	6.74	6.86	6.85
Meat and fish	5.71	5.98	5.94	5.73	6.03	5.96	5.63	5.94	5.91
Pulses	4.81	5.46	5.35	4.73	5.66	5.43	5.00	5.30	5.27
Oils	4.22	5.11	4.96	3.55	3.74	3.70	5.95	6.24	6.22
Fruits	3.85	3.48	3.54	3.67	3.17	3.30	4.32	3.73	3.79
Sweets	2.32	2.88	2.79	2.16	3.04	2.83	2.74	2.75	2.75
Milk	0.13	0.26	0.24	0.00	0.36	0.27	0.47	0.18	0.21

Sugar (sweets) and oil have the least nutritional weighting (0.5). Results of the frequency of consumption of food groups by project beneficiaries are presented Table 2 above

Project beneficiaries every day of the week consume staple food as well as vegetables, fish/meat and pulses frequently. The least frequently consumed food group was milk (yoghurt, cheese, milk). Female Headed Households (FHHs) tended to consume each food group less frequently than Male headed households (MHHs) with the exception of fruits and vegetables. Not much of a great discrepancy was observed by way of consumption of food groups by both districts except for oils.

In comparison to results of the World Food Programme's (WFP) Comprehensive Food Security and Vulnerability Analysis (CFSVA, 2012) report, project households had a better average frequency of consumption of fruits, pulses, fish and meat and vegetables (Table 3). These developments can be credited to improvements in standards of living during the project span as a result of improved yields and women's empowerment (in economic terms through soya and cowpea value chains).

Table 3: PROMISE Project FSDS and WFP CFSVA Food Group Consumption

Food groups	Upper East Region		Northern Region	
	PROMISE	**CFSVA**	**PROMISE**	**CFSVA**
Cereals and tubers	6.91	7.0	6.65	7.0
Vegetables	6.11	4.0	6.85	4.0
Meat and fish	5.96	3.2	5.91	4.9
Pulses	5.43	2.0	5.27	1.6
Fruits	3.30	1.9	3.79	3.1
Oil	3.70	3.8	6.22	3.0
Sweets	2.83	2.2	2.75	4.4
Milk	0.27	0.3	0.21	1

Food Sources

There is a strong indication from Table 4 that project households had improved capacity in sourcing food during the lean season from both cash purchases and their own production, it is also evident that very little supplementation of food supplies is coming from borrowing, food aid or gifts – thus emphasizing some measure of robust resilience from within than from without.

Table 4: Households' Sources of Major Food Items and Average Spent on Purchased Amount

Food item	% of households that sourced food item from own production		% of households that purchased food item using cash		Average Spending in a Week on Food Item for those that purchase (GH¢)	
	FHH	MHH	FHH	MHH	FHH	MHH
Beans & peas	29%	41%	68%	59%	4.5	5.3
Cassava	3%	8%	87%	82%	2.3	3.8
Eggs	100%	90%	0%	10%	0.0	3.9
Fish	0%	2%	98%	98%	4.0	4.2
Fresh fruits	88%	90%	6%	10%	2.0	3.2
Groundnuts	44%	67%	54%	33%	3.4	4.2
Leafy Vegetables	77%	85%	21%	16%	3.0	3.5
Maize	6%	42%	89%	57%	9.8	12.4
Meat	65%	37%	29%	60%	3.0	4.3
Milk/Yoghurt	0%	7%	100%	93%	3.2	3.0
Millet	43%	75%	55%	24%	5.5	7.2
Oil & Fats	29%	38%	71%	62%	2.4	2.2
Rice	29%	30%	71%	70%	6.3	6.1
Sorghum	60%	77%	40%	22%	6.0	7.5
Food item	**% of households that sourced food item from own production**		**% of households that purchased food item using cash**		**Average Spending in a Week on Food Item for those that purchase (GH¢)**	
	FHH	**MHH**	**FHH**	**MHH**	**FHH**	**MHH**
Soybean	24%	21%	76%	78%	3.0	4.2
Vegetables	13%	14%	89%	92%	2.5	3.2
Yam	25%	19%	75%	78%	7.2	6.1

Conclusions

The results from the preceding analysis of food groups, food consumption thresholds, food consumption scores and food sources are indicative of project beneficiaries being within acceptable food consumption thresholds due to improved access to varied nutritious diets; improved ability to produce enough to meet household requirements during the lean season; and spending less proportions of incomes on food, thus, potentially having better access to disposable income when compared to non-beneficiaries. The results are indicative of the possibility that FCSs can be improved through a creative combination of increasing the frequency of consumption and improving the nutritional value of what is consumed (as was the case for the PROMISE project).

The Second Objective of the study was:

- ✓ To ascertain if the project was successful in increasing income from the sale of agricultural commodities (production-for-income) and how this translated to improved nutrition in the household.

In addition to food and nutrition was the project's interest in "increasing household income for smallholder women farmers and micro entrepreneurs through effective engagement in economic activities along the soy and cowpea value chain". To ascertain this in the context of this study, sampled households were asked a range of questions on income variables (on-farm and off-farm) as presented in Table 5. Total annual incomes increased in nominal terms during the project span. Significant factors accounting for this were closely associated with increases in yields from own production; improved access to markets; margins realized from the sale of value-

added products in the soya and cowpea value chains; and VSLA membership activities (that supported diversification of income sources) all of which resulted in the mean number of off-farm business activities being engaged in by women increasing to 3.8 (or almost 4).

Table 6: Annual Household Off-farm Income by Household Headship and District

Income sources	Total HHs	Male headed HH	Female headed HH
Income from off-farm activities total GHS	**2,547.89**	**2,484.93**	**2,387.40**
Agriculture wage labour	1,186.35	1,225.87	1,108.53
Non agriculture: wage labour	1,113.57	1,107.17	1,131.07
Skilled labour	2,173.65	2,136.74	1,732.08
Small business activities (street vending, shop keeping)	1,152.83	1,172.70	1,176.38
Formal employee (Gov't, NGO, private)	1,449.53	1,450.92	1,447.14
Handicrafts	571.47	386.33	412.00
Remittances (foreign, domestic)	1,141.81	153.67	106.25
Wood/charcoal sales	884.82	876.41	805.45
Non-forest timber products	173.86	175.12	168.50
Garu-Tempane	1,104.30	1,025.09	1,136.15
East Mamprusi	2,190.70	2,169.72	2,113.23
Number of off-farm businesses available to women (mean)	4.1	3.3	3.9
% of women engaging in off-farm soy and cowpea	79.3	84.7	66.2
Small business activities (street vending, shop keeping) %	53.3	50.1	34.2
Wood/charcoal sales (%)	27.7	23.6	28.0
Agricultural wage labour (%)	49.3	44.8	33.3
Number of soy and cowpea businesses engaged by women (Mean)	3.6	3.4	3.8

Source: Field Survey (2018)

Average annual incomes prior to the PROMISE project were reported at baseline to be 3,391.03 (USD 892.4[1]) while the post ante survey results point to an increase to GHS 5,666.94 (US$ 1,259.32[2]) representing some 60% improvement above baseline. Growth in income was more significant for on-farm (GHS 4,719.01) related income sources than off-farm sources (GHS 2,547.89). In respect of individual districts, East Mamprusi District (EMD) had a superior record of income mobility (GHS 2,190.70 = US$ 487) than GTD (GHS 1,104.30 = US$ 245.4). As presented in Table 6, off-farm incomes and incomes from own production of soya and cowpea improved above those recorded at baseline where majority of FHH (66.2%) hitherto were not involved in soya and cowpea production and had limited off-farm business opportunities.

[1] Exchange rate as at survey period was GHS1=US$ 3.8
[2] Exchange rate of 4.54741 (www.oanda.com 16th May 2017)

The post ante survey results as presented in Tables 6 and 7 indicate positively that project beneficiaries have attained income mobility that puts them above the extreme poverty line (GHS 792.05) in Ghana.

Table 7: Annual Household On-farm Income by Household Headship and District (Baseline vs Post-antes)

Baseline			
	Total HHs	**Male-headed HH**	**Female-headed HH**
On-farm/agricultural income[Total GH¢]	**1521.50**	**1647.16**	**861.15**
Crop sales (own production)	512.01	561.41	329.51
Sales of livestock and livestock products	395.91	426.45	220.00
Nursery products	150.41	173.25	48.89
Seed selling	101.87	106.24	88.08
Other	356.29	374.8	307.30
East Mamprusi	1694.77	1773.08	837.57
Garu Tempane	976.69	1082.18	673.16
% of women engaging in on-farm agriculture activities (Multiple response):			
Crop sales (own production/household gardening)	64.3	57.1	62.6
Agriculture wage labour	19.3	14.3	18.1
Processing	17.9	9.5	15.9
Seed selling	19.8	20.6	20.0
Time spent in generating income from soy and cowpea (in hours)	6.5	7.0	5.5
Post-ante			
	Total HHs	**Male-headed HH**	**Female-headed HH**
On-farm/agricultural income[Total GH¢]	**4,719.01**	**4,931.16**	**4,306.86**
Crop sales (own production)	2,592.12	2,661.95	2,462.29
Sales of livestock and livestock products	1,401.34	1,520.85	1,366.30
Nursery products	1,196.06	1,217.75	1,222.20
Seed selling	1,183.71	1,199.81	1,118.56
Other	1,499.15	1,412.80	1,337.51
East Mamprusi	3,629.18	3,941.33	3,507.19
Garu Tempane	4,607.45	4,773.36	4,783.04
% of women engaging in on-farm agriculture activities (Multiple response):			
Crop sales (own production/household gardening)	70.3	71.2	67.4
Agriculture wage labour	32.1	25.5	28.6
Processing	26.3	25.8	34.4
Seed selling	30.6	28.8	32.4
Time spent in generating income from soy and cowpea (in hours)	-	-	-

Source: Field Survey (2018).

Table 8 gives further credence to income mobility via the medium of improved access to markets associated with soya and cowpea value chains. The main crops (soya and cowpea) promoted by the project witnessed over 100% improvement in prices during the project span compared to baseline. It is quite unlikely that the margins realized

through the sale of these crops and their value added products would not have translated into above normal profits that would aid income mobility.

Table 8: Access to Market along Soy and Cowpeas Value Chain (Baseline vs Post-ante)

Baseline		
	Garu Tempane (soy)	**East Mamprusi (cowpea)**
% reporting selling last harvest produce through:		
Open market	93.8%	100%
Other buyer	6.2%	-
Volume of 100kg per maxi bag of produce sold through:		
Open market	75.6	160.2
Other buyer	4.3	-
Total Volume of produce sold (100kg of maxi bag)	79.9	160.2
Mean price of 100kg of maxi bag of produce sold through:		
Open market	110	109.75
Other buyers	210.27	-
Mean price of 100kg maxi bag of produce during bumper season	135.94	93.21
Mean price of 100kg maxi bag of produce during lean season	259.87	126.25
% reporting difficult in getting market for their produce	30.2%	72.9%
Nature of difficulty encountered:		
Low prices for products	10.3	35.8
Lack of buyers for produce	0.7	18.7
Transportation	4.4	73.9
Storage	0.7	56.7

Post-ante				
	Garu Tempane		**East Mamprusi**	
	soy	**cowpea**	**soy**	**cowpea**
% reporting selling last harvest produce through:				
Marketing committee	25.0%	23.7%	34.7%	43.4%
Open market	65.3%	47.2%	40.0%	52.8%
Other buyer	30.3%	59.2%	49.6%	40.8%
Volume of 100kg per maxi bag of produce sold through:				
Marketing committee	144.81	99.11	75.33	83.55
Open market	134.57	108.73	37.20	89.08
Other buyer	151.09	80.10	14.00	74.35
Total Volume of produce sold (100kg of maxi bag)	430.36	287.94	126.53	246.98
Mean price of 100kg of maxi bag of produce sold through:				
Marketing committee	230.0	440.00	205.00	410.00
Open market	220.0	400.00	200.00	390.00

	0			
Other buyers	215.00	385.00	190.00	375.00
Mean price of 100kg maxi bag of produce during bumper season	221.67	408.33	198.33	391.67
Mean price of 100kg maxi bag of produce during lean season	250.00	450.00	210.00	430.00
% reporting difficult in getting market for their produce	48.2%	48.7%	36.5%	51.7%
Nature of difficulty encountered:				
Low prices for products	29.3%	19.3%	29.3%	35.8%
Lack of buyers for produce	31.7%	28.1%	31.7%	18.7%
Transportation	38.1%	40.2%	38.1%	73.9%
Storage	27.4%	57.3%	27.4%	56.7%

Source: Field Survey, (2018).

Conclusion

The signs of accelerating food insecurity and increased levels of varying forms of malnutrition are a vivid signal of the pressing need for extensive additional work to ensure we "leave no one behind" on the road towards the attainment of the SDGs on nutrition and food security. Good nutrition is the lifeblood of sustainable development and energizes the changes needed for a more sustainable and prosperous future. It is very clear from the positive nutrition outcomes being reported under the preceding section that they did not come about solely as a result of PROMISE beneficiaries' own production – this is where the income growth being reported here reinforces the idea that nutrition and income growth are not mutually exclusive. It is argued by others that, to meet nutrition targets, it is paramount that we stimulate greater economic growth and higher incomes for poor people, because poverty and malnutrition often go hand in hand. Generally, more incomes lead to better nutrition over time, because, improved incomes usually enable poor families to have better access to things that matter for good nutrition: food of sufficient quality and quantity, adequate time for mothers to get and use good information on child feeding and hygiene, sufficient preventive and curative health care of good quality and adequate supplies of clean water.

The Third Objective of the study was:

- ✓ To analyse the extent to which empowerment of women agriculturists has taken place through the efforts of the project.

Three key areas were considered in our effort to respond to this objective. These were: 1) *percentage of men and women reporting women's participation in decision-making*; 2) *percentage of men and women reporting women's contribution on the purchase of new productive capital*; and 3) *percentage of women's inputs into household decision making*.

Results of the post-ante survey on ***men and women reporting women's participation in decision-making*** looking at a set of 16 indicators under this domain (as shown in Table 9) reveal that, in MHH, about two-thirds of men (69.5%) and women (72%) are reporting women's participation in decision-making compared to about a quarter of FHH where only 25.7% and 28.1% respectively are reporting same. It is particularly significant that men (78.2%) in MHH are reporting meaningful participation of women in decision making at the household level previously reserved for men relative to issues such as: "*negotiating with buyers*" of their farm produce or value added commodities along the soya and cowpea value chains. It would appear from this result that the District Value Chain Committees (DVCCs)

are doing well in terms of facilitating the right market options for collectives thus improving their negotiation power.

On the contrary, men in FHH tend to see major improvements in women's decision-making in areas such as: "*spending money that they have earned*" (**42.9%**); "*what inputs to buy for agricultural production*" (**38.9%);** and "*non-farm business activity*" or "*whether or not to use family planning*" (**35.7%** respectively) (Table 9). Comparatively, women in MHH tend to have a stronger participation in decision making relative to all the issues identified with about two-thirds of respondents (65% and above) indicating this to be true. Notable areas of over **75%** participation of women in decision-making in MHH are connected to issues of: *"cash crop farming: crops that are grown primarily for sale in market"*; "*livestock raising*"; "*negotiating with buyers*"; "*children's education*" and "*non-farm business activity"* . An aggregate of responses from both MHH and FHH suggests that only about 49% (just about half) of PROMISE participants are convinced that women's participation in decision making is improving – well below the project's targeted 80% but well above baseline (40%). This ties in well with 51.5% of women reporting control of their own income in the project districts post-ante.

Table 9: Percentage of Men and Women Reporting Women's Participation in Decision-making

Aspect of women's participation in household decision making	**FHH**		**MHH**	
	% of men	**% of women**	**% of men**	**% of women**
Crops that are grown primarily for household food consumption	12.5	32.9	87.5	67.1
Cash crop farming: crops that are grown primarily for sale in market	30.8	23.8	69.2	76.2
Livestock raising	34.8	24.0	62.5	76.0
When or who would take products to the market	25.0	27.9	75.0	73.0
Non-farm business activity	35.7	24.2	64.3	75.8
What inputs to buy for agricultural production	38.9	25.9	61.1	74.1
Major household expenditures	29.7	34.6	70.3	65.4
Minor household expenditures	22.7	28.8	77.3	71.2
Negotiate with buyers	28.0	21.5	72.0	78.5
Buying clothes for yourself	31.2	31.6	68.8	68.4
Spending money that you have earned	42.9	29.3	57.1	70.7
Spending money that your spouse has earned	31.8	26.3	68.2	73.7
Children's education	27.0	22.6	73.0	77.4
Seeking medical treatment for your children or yourself in case of illness	30.0	32.3	70.0	67.7
Whether or not to use family planning	35.7	34.5	64.3	65.5
Participate in household finance matters	29.0	30.0	71.0	70.0
Total %	**25.7**	**28.1**	**69.5**	**72**

Source: Field survey (2018).

In the second domain; "***women's contribution in the purchase of productive capital***", 12 indicators were considered in the post-ante survey. The post-ante results suggest that, whereas more than half of women in FHH (54%) and MHH (50.1%) are reporting that their contribution to the purchase of new productive capital is increasing, more than a quarter of their male counterparts, 30.8% and 30.6% respectively, are reporting same. It would appear from the results in Table 10 that, women's

contributions are strongest in the areas of: mechanized and non-mechanized farm equipment (62.1% and 56.2% respectively); small consumer durables (56.1%); cell phones (55.3%); small livestock (54.4%) and poultry (52.1%) – in the opinion of women in MHH. However, for men in FHH, women's most important areas of contribution to the purchase of productive capital are: large livestock (43.8%); houses (39.1%) and agricultural land (38.7%). It is conclusive from the results that, from the perspective of both genders, women are making contributions to the purchase of productive capital in more than half of the sampled households.

Table 10: Percentage of Men and Women Reporting Women's Contribution to the Purchase of New Productive Capital

Women's contribution in the purchase of productive capital	FHH		MHH	
	% of men	**% of women**	**% of men**	**% of women**
Agricultural land	38.7	45.3	40.8	46.1
Large livestock	43.8	50.1	48.8	42.7
Small livestock	34.5	53.5	32.0	54.4
Poultry	33.3	50.0	34.5	52.1
Non mechanized farm equipment	30.0	57.5	30.1	56.2
Mechanized farm equipment	25.0	75.0	30.3	62.1
Means of transport	21.4	57.2	34.3	45.7
House	39.1	46.8	37.5	42.8
Large consumer durables	31.8	50.0	36.4	47.7
Small consumer durables	27.1	58.3	27.6	56.1
Cell phone	14.3	52.4	16.1	55.3
Other land not used for agricultural purposes	30.0	51.6	38.3	39.3
Total	**30.8**	**54**	**30.6**	**50.1**

Source: Field Survey (2018).

The third area of investigation was with respect to ***"women's input into household decision-making".*** A set of 16 decision-making markers were identified for households to gauge women's input according to the following Likert scale: *1) Input into some decisions; 2) Input into most decisions;* and *3) Input into all decisions*. "***Input into all decisions***" represents the best desired state.

Results of the post-ante survey indicate the following:

- At GTD, women make ***"input into all decisions"*** relative to "*buying clothes for themselves*" (45.8%) and *"spending money that they have earned"* (40.2%) – with more than a third of respondents indicating this to be true. A similar trend is observed for EMD where more than half of women make "input into all decisions" relative to *"buying clothes for themselves"* (54.9%) and *"spending money that they have earned"* (58.2%) (Table 15).
- The areas where project participants ***"make input into most decisions"*** are: "*what inputs to buy for agricultural production*" (42.1%) and *"livestock raising"* (39.8%) for the case of GTD. However, at EMD, *"crops that are grown primarily for household food consumption"* (50.4%) and "*whether or not to use family planning*" (51.6%) were the issues highlighted by more than half of women responding to the survey (Table 11).
- The areas where women make "***input into some decisions***" were identified at GTD to include: "*non-farm business activity*" (42.5%) and "*whether or not to use family*

planning" (36.6%). In the case of EMD, *"spending money that your spouse has earned"* (34.3%) and "*Livestock raising*" (32.4%) were flagged to be the areas of least input into decision-making (Table 11).

These results clearly point to the fact that, while PROMISE participants are getting empowered with time, they still lag in many vital areas of decision-making power such as: decisions on crops that are grown primarily for sale in the market by both men and women; raising of livestock; spending money that their spouses have earned; and when or who would take products of men to the market. It is however significant to note that, the results of the post-ante survey reveal significant improvement over baseline where only about 30% of women were recorded to have influence in household decision-making relative to the issues itemized.

Table 11: Women's Inputs into Household Decision-making

Decision making domains	Garu-Tempane district			East Mamprusi district		
	Input into some decisions	Input into most decisions	Input into all decisions	Input into some decisions	Input into most decisions	Input into all decisions
Crops that are grown primarily for household food consumption	28.0	36.8	31.2	28.2	50.4	17.9
Cash crop farming: crops that are grown primarily for sale in market	30.5	33.7	27.4	29.4	47.1	17.6
Livestock raising	29.1	39.8	20.4	32.4	39.8	19.4
When or who would take products to the market	31.1	27.4	31.1	31.6	44.9	16.3
Non-farm business activity	42.5	27.5	20.0	20.0	41.4	25.7
What inputs to buy for agricultural production	29.0	42.1	22.4	29.8	46.2	16.3
Major household expenditures	32.1	33.0	29.5	28.9	35.1	24.6
Minor household expenditures	30.2	30.2	37.1	22.9	44.1	31.4
Negotiate with buyers	24.3	35.5	34.6	17.4	46.7	21.7
Buying clothes for yourself	18.7	31.8	45.8	3.5	39.8	54.9
Spending money that you have earned	23.2	32.1	40.2	4.5	36.6	58.0
Spending money that your spouse has earned	25.2	31.1	24.3	34.3	39.4	9.1
Children's education	25.5	35.5	37.3	17.2	37.1	40.5
Seeking medical treatment for your children or yourself in case of illness	26.6	33.9	37.6	20.8	40.0	20.1
Whether or not to use family planning	36.6	28.2	26.8	10.9	51.6	29.7
Participate in household finance matters	33.8	27.5	31.2	22.3	42.7	26.2

Source: Field Survey (2018).

Conclusion

It is conclusive from the foregoing that the project beneficiaries enjoyed an appreciable degree of social and economic empowerment, positive change as well as progress generally in terms of the opportunity structure created by the project to improve their agency. Integrating VSLA activities as a complement to intensifying the uptake of nutrition education undoubtedly contributed in no small measure to increasing women's participation in decisions about what to produce and how to expend income therefrom; decisions on division of labour and gender roles within households; and participation in activities outside of the household. There has also been enhanced discourse around issues of patriarchal roles, practices and relationships. There was equally widespread expression of satisfaction with the project's facilitation for improvements in household decision-making and greater voice in and outside of the household – thus, suggesting relevance and value-addition of the project concept to local priorities and needs. There is certainly a long way to go but the PROMISE project has given good premise and example of how such a process can be set in motion.

Conclusion and Recommendations

Conclusion

The results of this study present emerging issues that point to incontrovertible evidence of the project's pathways to impact being robust. The evidence is replete at the district, community and household levels. Household level impact pathways perhaps represent the greatest and sturdiest evidence of how the wellbeing of beneficiaries has changed through participation in the project. Impact pathways worth noting are: strengthened and diversified livelihoods (through capacity building for processing and marketing of soya and cowpea); improved food sources, diversity and better nutrition; improved agronomic practices and expansion and protection of key assets; shifts in gender dynamics that have fostered and promoted women's agency etc. Whereas contributing factors that undermined pathways to impact cannot be discounted, it was observed that they mostly entailed intricate attitudes and sensitivities steeply entrenched in religion, culture and custom.

At the forefront of the districts, the project contributed in no small measure to stimulating improved discourse on pathways to achieving a gender-sensitive livelihood security through very simple but often overlooked initiatives like cowpea and soya production for not merely food security but nutrition security as well. This process has shed light on how local governments, working in partnership with NGOs can support vulnerable girls and women to equitably participate in and benefit from soya and cowpea value chains through women-led multi-stakeholder platforms. In very important ways, the project helped to redefine and deepen understanding of how soya and cowpea value chain development can translate into improved nutrition using locally appropriate, adaptable and flexible strategies that have respect for local food preferences and tastes – and without being prescriptive in the process.

Recommendations

Founded on the results of this study, we recommend the following in support of either a second phase of the project or the design of new projects based on the lessons learnt from the implementation of the PROMISE model:

- The project's focus on the use of nutrition counseling cards and improving access to same for nutrition information in complementation with cooking demonstrations in project communities proved novel. The creativity to the process was the introduction of media partners (local radio stations) and hospitality sector actors to support wide-scale broadcast and uptake of nutrition information and marketing possibilities for soya and cowpea value chain activities. This represented a positive departure from conventional training and support in nutrition that tended to provide external packages using supplementary food not attuned to the tastes and preferences of most locals. We recommend that this model be replicated widely by local government actors in the health, agriculture, nutrition and

related sub-sectors for ultimate sustainability. The change levers to facilitate the process should focus on: capacity, access, productivity and incomes, household influence and the creation of the enabling environment to achieve the aforementioned.

- Considering the low level of literacy of women beneficiaries in VSLAs or SMEs (under the PROMISE project); managing their operations and benefits, requires the provision of functional literacy and alternative adult education may be worth considering for future programming. As this component may be costly, the development of partnerships with existing governmental programmes such as the Rural Enterprises Programme (REP) or the National Entrepreneurship and Innovation Programme (NEIP) could be a worthwhile effort towards guaranteeing their functional sustainability as critical arenas for nutrition education. VSLAs are a vital entry point for nutrition information dissemination; however, the importance of linking VSLA groups to Microfinance institutions with adapted financial services (interest rate, repayment period) to ensure their financial inclusion is not receiving much policy support within government circles. It is necessary that government's financial inclusion efforts take cognizance of this lacuna and institute measures to make this a reality.
- In a context of chronic food shortage, the combination of several approaches is most appropriate. Addressing the problem of malnutrition (sensitization to improve nutrition practices, diversification of food consumption) while developing productive and income generating interventions using soya and cowpea are improving the long-term availability, accessibility and proper utilization of food by beneficiaries as witnessed under the PROMISE project. Given that both of these strategies have resulted in strong changes in agency and structure, it is suggested that future government projects adopt, articulate and consolidate a clear and specific government engagement strategy in which agencies are clearly identified; an activity plan and key gender equality messages are developed and milestones are set for all stakeholders. Therefore, supplementary resources in terms of capacity building and skilled technical staff be dedicated to this where necessary.

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