

**Development of a roadmap for
mainstreaming nutrition-sensitive
interventions in Anambra and Kebbi States,
Nigeria**

by
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DECLARATION

By submitting this dissertation electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the authorship owner thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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ABSTRACT

Malnutrition, though on a slight decline, has continued to be a problem in developing countries. The role of nutrition-sensitivity sectors as a linkage between immediate causes and basic causes of malnutrition has been increasingly recognised in recent years as positively associated with malnutrition reduction. Considering the accumulating evidence pointing to a strong relationship between malnutrition reduction and nutrition-sensitive sectors, including agriculture, education, water, sanitation and hygiene (WASH), and social protection, mainstreaming nutrition into these sectors has been widely discussed, designed and implemented in programmes and policies. Large-scale government programmes in nutrition-sensitive sectors are important elements of delivering nutrition-sensitive malnutrition-preventive benefits to the population. Mainstreaming nutrition into these cross-cutting sectors becomes imperative in the fight for malnutrition reduction. The Mainstreaming Nutrition Initiative Assessment (MNIA) is a framework developed for the assessment of mainstreaming nutrition (Menon et al, 2011), which measures the domains of epidemiology, operational and political commitment. However, there has been little attempt to explore its application in mainstreaming nutrition. The aim of the study was to develop a roadmap for mainstreaming nutrition-sensitivity in Anambra and Kebbi States, Nigeria.

The study used a four-phased convergent parallel mixed methods design. In Phase 1, small area estimation methodology was employed to estimate local government prevalence of stunting in Nigeria. Phase 2 was carried out in two stages, first, a nutrition-sensitivity and potential checklist were used to determine the current nutrition-sensitivity and possible potential of programme execution in the various sectors in both states. Subsequently, a theory-based process evaluation that employed key informant interviews, document reviews, and site observations were used to determine the operational factors influencing the implementation of the programmes. In Phase 3, a political commitment rapid assessment test was administered in a workshop to explore the political realities regarding nutrition and nutrition-sensitivity in the states. In Phase 4, the data and information from the previous phases were employed to develop a roadmap for mainstreaming nutrition-sensitivity in both states, which was also validated by the stakeholders. Data were analysed using qualitative thematic analysis and MAXQDA software.

LGA stunting prevalence estimations varied across the states. Kebbi State had high state average accompanied by very high LGA stunting estimates. Stunting prevalence in Kebbi State ranged from 54 percent to 67 percent. While in Anambra State, the stunting prevalence ranged from 17 percent to 25 percent, both states were in WHO category of medium to high stunting prevalence. The programmes assessed were averagely nutrition-sensitive but most of them had excellent potential to be highly

nutrition-sensitive. The agricultural programmes have the best implementation while programmes in the WASH sector were the weakest in terms of implementation. The process evaluation showed that the programmes' theory was validly nutrition-sensitive. The programmes had varied implementation dimensions, while the Agricultural Transformation Agenda Programme had a very high dose, the programmes reach was minimal. Programmes such as the Environmental Sanitation and Early Childhood Development Education has wide reach but lower dose and implementation. With regards to political commitment, while Kebbi had high expressed commitment, this was supported with the poor institutional commitment, unlike Anambra where strong institutional commitment existed but lacked financial support. From these findings, a roadmap for mainstreaming nutrition-sensitivity was developed and most stakeholders agreed that the roadmap was implementable and feasible.

Future investigation is needed to replicate the study in other states. In addition, following-up Anambra and Kebbi states with the implementation of the roadmap may shed more light on the dynamics and role of the various domains in nutrition-sensitive mainstreaming.

OPSOMMING

Wanvoeding, alhoewel daar 'n effense afname gesien word, bly steeds 'n probleem in ontwikkelende lande. Verskeie staatsektore wat aktief is by die bewusmaking van voedingsgevoeligheid word as 'n skakel tussen die onmiddellike oorsake en basiese oorsake van wanvoeding erken. Hierdie rol hou positief verband met die vermindering van wanvoeding.

Met die inagneming van verskeie bewyse wat dui op 'n sterk verhouding tussen wanvoedingvermindering en voedingsgevoelige sektore, insluitend landbou, opvoeding, water, sanitasie en higiëne, en sosiale beskerming, is die integrasie van voeding in hierdie sektore wyd bespreek, ontwerp en geïmplementeer in programme en beleide. Grootse regerings programme in voedingsgevoelige sektore is belangrike elemente vir die lewering van voedingsgevoelige, wanvoeding-voorkomende voordele aan die bevolking. Die integrasie van voeding in hierdie sektore word noodsaaklik in die stryd teen wanvoeding. Die integrasie-voedingsinisiatief-assessering is 'n raamwerk wat ontwikkel is vir die assessering van integrasie voeding (Menon et al, 2011), wat die gebiede van epidemiologie, operasionele en politieke verbintenis meet. Daar is egter min pogings om die toepassing daarvan in die integrasie van voeding te ondersoek. Die doel van die studie was om 'n raamwerk te ontwikkel vir die integrasie van voedingsgevoeligheid in die Anambra en Kebbi state van Nigerië.

Die gemengde metodes benadering is gebruik tydens die navorsings ontwerp. In Fase 1 is klein area beramingsmetodologie gebruik om die plaaslike regering se voorkoms van verdwering in Nigerië te skat. Fase 2 is in twee fases uitgevoer. Eerstens is 'n voedingsgevoeligheid en potensiële voedingsgevoeligheid kontrolelys gebruik om die huidige voedingsgevoeligheid en die potensiaal van programuitvoering in die verskillende sektore in beide state te bepaal. Vervolgens is 'n teoriegebaseerde prosesevaluering gedoen, met die hulp van sleutel-informantonderhoude, dokumentresensies en besoeke, om die operasionele faktore wat die implementering van die programme beïnvloed, te bepaal. In Fase 3 is 'n politieke toewydings assesseringstoets toegepas om die politieke realiteite rakende voedings- en voedingsgevoeligheid in die state te ondersoek. In Fase 4 is die data en inligting van die vorige fases aangewend om 'n raamwerk te ontwikkel vir die integrasie van voedingsgevoeligheid in beide state, wat ook deur die belanghebbendes bekragtig is. Data is geanaliseer met behulp van kwalitatiewe tematiese analise en MAXQDA sagteware.

Skattings van die voorkoms van verdwering wissel tussen die state. Kebbi het 'n hoë staatsgemiddeld, vergesel met baie hoë plaaslike regerings area-ramings. Voorvalle van verdwering in Kebbi wissel tussen 54 persent en 67 persent. In Anambra het die voorvalle tussen 17 en 25 persent gewissel. Albei

lande was in die Wereld Gesondheid Organisasie se medium tot hoë kategorie van verdwering voorkoms. Die beoordeelde programme was gemiddeld voedingsgevoelig, maar die meeste van hulle het uitstekende potensiaal om hoogs voedingsgevoelig te wees. Die landbouprogramme het die beste implementering getoon, terwyl programme in die WASH-sektor (water, sanitasie en higiëne) die swakste gevaar het in terme van implementering. Die prosesevaluering het getoon dat die programme teoreties voedingsgevoelig was. Die programme het uiteenlopende implementeringsdimensies gehad, terwyl die Program vir Landbou Transformasie Agenda 'n groot impak gehad het, was die omvang van die programme minimaal. Programme soos die Omgewings Sanitasie- en Vroeë kinderonwikkelings programme het wye omvang, maar laer impak en implementering getoon. Met betrekking tot politieke verbintenis het Kebbi groot betrokkenheid uitgespreek, maar is ondersteun deur swak institusionele toewyding. In Anambra was daar weer sterk institusionele toewyding, maar geen finansiële ondersteuning nie. Uit hierdie bevindings is 'n raamwerk vir die integrasie van voedingsgevoeligheid ontwikkel en die meeste belanghebbendes het ooreengekom dat die raamwerk implementeerbaar en haalbaar is.

Verdere navorsing is nodig om die studie in ander lande te herhaal. Daarbenewens kan die opvolg van Anambra en Kebbi-state, na die implementering van die raamwerk, meer lig werp op die dinamika en rol van die verskillende sektore in voedingsgevoelige integrasie.

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POSITIONALITY

I come from a lower-middle-class family in Nigeria. While my mom worked for different levels of government, my father was an entrepreneur and later turned farmer. I grew up at Onitsha and throughout my childhood, funds were often short. Although there was enough food, my family struggled to accumulate assets. Despite this we knew we were relatively privileged, we were indeed better off financially than millions of other Nigerians. I was acutely aware of this while growing up.

Mostly three courses exist in Nigeria: Law, Medicine and Engineering. I towed the path of Medicine. From what I would now term a stroke of luck, I began Applied Biochemistry at Nnamdi Azikiwe University. I proceeded to my one-year compulsory NYSC at Jos South Local Government Secretariat Bukuru. Then I began to realise that there was more to Medicine than hospitals. I became interested in Public Health, through the immunisation campaigns, primary healthcare educations, and market behavioural communication change campaigns. This experience opened my eyes. That was my first unlearning that health began in the communities and not hospitals. In some ways, this shook me. I was no longer confused. I knew what I wanted to do.

My next step was getting equipped with knowledge. That meant getting a Masters. I joined the Department of Human Nutrition at the University of Ibadan for an MPH. The studies gave me an overview and then a practical opportunity at addressing malnutrition. Now I was equipped with some nutrition knowledge. I began applying these at the Food Basket Foundation International, Ibadan.

Then another realisation dawned on me. The solutions to malnutrition are an open secret. NGOs and agencies are trying their best, with fantastic impact through their programmes. But the scale, coverage and funding meant they cannot sustainably reduce malnutrition alone. Only the government has the willpower and resources to sustainably make an impact. Indeed, the solutions needed to make impact exist in some form or other. It was with these thoughts that I began my doctorate with an ambition to help enable a greater impact through government. This thesis has emerged as a result of this desire.

LIST OF ABBREVIATIONS

AfDB	African Development Bank
ATASP 1	Agricultural Transformation Agenda Support Programme 1
CARI	Competitive Africa Rice Initiative
CASP	Climate Change Adaptation and Agribusiness Support Programme
CCT	Conditional Cash transfer
C-IMCI	Community Based Integrated Management of Childhood Illnesses
DDS	Dietary Diversity Score
DFID	Department for International Development
DHS	Demographic Health Surveys
ECD	Early Childhood Development
FGT	Foster Greer Thorbecke
FMARD	Federal Ministry of Agriculture and Rural Development
FMoH	Federal Ministry of Health
GAIN	Global Alliance for Improved Nutrition
GPS	Global Positioning System
HAZ	Height for age Z-scores
HDDS	Household Dietary Diversity Score
HGSF	Home Grown School Feeding
IEC	Information Education Communication
IHME	Institute of Health Metrics and Evaluation
WA-WASH	West Africa Water Sanitation and Hygiene
IYCF	Infant and Young Child Feeding
LAC	Latin America and the Caribbean
LGA	Local Government Area
LMIC	Low and Middle-Income Countries
LSMS	Living Standards Measurement Survey
MNCHW	Maternal, Newborn and Child Health Week
MoH	Ministry of Health
NBS	National Bureau of Statistics
NGO	Non-Governmental Organization
NPC	National Population Commission

NPFN	National Policy for Food and Nutrition
PCOM-RAT	Political Commitment Rapid Assessment Test
PIP	Program Impact Pathway
QGIS	Quantum Geographical information Systems
RCT	Randomized Control Trial
RUTF	Ready to use therapeutic Food
SAM	Severe and Acute Malnutrition
SDG	Sustainable Development Goal
SoL	Sum of Lights
SOML	Saving One Million Lives
SUN	Scaling Up Nutrition
UBEC	Universal Basic Education Commission
UCT	Unconditional cash transfer
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development
USAID	United States Aid for International Development
VCDP	Value Chain Development Program
WASH	Water, Sanitation and Hygiene
WA-WASH	West African Water Supply Sanitation and Hygiene
WAZ	Weight for Age Z-scores
WEAI	Women Empowerment in Agriculture Index
WHO	World Health Organisation
WHZ	Weight for height Z-scores
WINNN	Working to Improve Nutrition in Northern Nigeria

Table of Contents

Declaration.....	ii
Abstract.....	iii
Opsomming.....	v
Acknowledgements.....	vii
Positionality	x
List of abbreviations.....	xi
List of tables	xxi
List of figures.....	xxiii
List of appendices	xxiv
The format of the dissertation.....	25
Chapter 1.....	29
1 Introduction	29
1.1 The Problem.....	29
1.2 The objectives of the study.....	32
1.3 Importance of the study	32
1.4 The theoretical framework for the study	33
1.5 Research approach of the study	35
1.6 Research questions	35
1.7 Delimitations.....	35
1.8 Assumptions.....	36
1.9 Operational definitions	36
1.10 Conclusions	38
Chapter 2.....	39
2 Literature review.....	39
2.1 Introduction	40
2.2 Global prevalence of malnutrition.....	40
2.3 Prevalence of malnutrition in Nigeria	41
2.4 National nutrition-sensitive programmes and initiatives in Nigeria.....	44
2.4.1 Policies and programmes set in place to address malnutrition in Nigeria	44
2.5 Interventions to address malnutrition.....	45

2.6	The potential of nutrition-sensitive sectors.....	48
2.7	Theories linking agricultural programmes to nutritional status and nutritional outcomes .	49
2.7.1	Income	51
2.7.2	Own food production.....	53
2.7.3	Forests and nutrition.....	54
2.7.4	Gender-related factors or overall women empowerment	56
2.7.5	Agricultural – nutrition links in a nutshell.....	57
2.7.6	Effects of the agricultural programme on nutritional status	58
2.8	Education	62
2.8.1	Parental education and nutrition.....	62
2.8.2	Early childhood education and nutrition	63
2.8.3	Factors that affect the impact of early childhood development	66
2.8.4	Current situation of early childhood development in Nigeria	66
2.9	WASH	68
2.9.1	Links between undernutrition and WASH	69
2.10	Social Protection	73
2.10.1	Effects of cash transfers on nutritional status	74
2.10.2	Labour market interventions and nutrition linkage.....	76
2.10.3	Systematic reviews linking social protection and nutrition	77
2.11	Conclusion of literature review.....	82
Chapter 3.....		83
3	Pragmatism as the philosophical foundation for the mainstreaming nutrition initiative assessment approach.....	83
3.1	Introduction	84
3.2	Aim of the chapter	84
3.3	Mainstreaming nutrition initiative assessment framework: Methodological characteristics	84
3.4	Introduction to pragmatism.....	87
3.5	Basic principles of a pragmatic approach	88
3.5.1	Knowledge.....	88
3.5.2	Knowledge creation	89
3.5.3	What works	89
3.5.4	Contextualisation	90

3.6	Study design.....	91
3.7	Site selection.....	94
3.8	Study location.....	94
3.9	Data collection procedures.....	95
3.9.1	Mixed methods data analysis.....	95
3.9.2	Ethics.....	96
3.9.3	Institutional authorisation.....	96
3.10	Conclusion.....	96
Chapter 4.....		97
4	Small area estimation of prevalence of stunting in Local Government Areas in Nigeria.....	97
4.1	Introduction.....	98
4.2	Small area estimation overview.....	99
4.3	The motivation for this phase and mapping of malnutrition in the world.....	101
4.4	Objective.....	101
4.5	Methodology.....	101
4.5.1	Modelling data.....	101
4.5.2	Data sources.....	103
4.5.3	Study area.....	104
4.5.4	Data collection procedures.....	104
4.5.5	Limitations of the study.....	105
4.6	Results.....	106
4.6.1	LGA Analysis of Kebbi State.....	112
4.6.2	LGA analysis of Anambra State.....	114
4.7	Discussion and conclusion.....	115
Chapter 5.....		117
5	Nutrition-sensitivity of programmes in Anambra and Kebbi states, Nigeria.....	117
5.1	Introduction.....	118
5.2	Criteria for mainstreaming nutrition-sensitivity.....	118
5.2.1	Integration.....	118
5.2.2	Use of nutrition outcomes.....	120
5.2.3	Women empowerment.....	121
5.2.4	Targeting.....	121

5.2.5	Using nutrition-sensitive programmes as delivery platforms for nutrition-specific interventions.....	122
5.2.6	Coverage	123
5.2.7	Intervention utilisation	124
5.2.8	Sustainability of the intervention	124
5.3	Justification for the study phase.....	125
5.4	Objectives.....	125
5.5	Methodology.....	125
5.5.1	Study design	125
5.5.2	Data collection	126
5.5.3	Approach to data analysis.....	128
5.5.4	Internal validity and reliability	129
5.5.5	Limitation of the study.....	129
5.6	Results and interpretation	130
5.6.1	Programmes implemented in the Ministry of Agriculture, Kebbi State	130
5.6.2	Programmes implemented in the Ministry of Agriculture, Anambra State	132
5.6.3	Nutrition-sensitivity and potential in Ministry of Agriculture	133
5.6.4	Programmes in the Ministry of Education, Kebbi State.....	135
5.6.5	Programmes implemented in the Ministry of Education, Anambra State	136
5.6.6	Programmes implemented in the Ministries of Environment and Water resources, Kebbi State	138
5.6.7	Programmes implemented in The Ministries of Environment and Department of water, Ministry of Power and Domestic Water, Anambra State	139
5.6.8	Programmes implemented in the Ministry of Women Affairs and Social Development, Kebbi State	141
5.6.9	Programmes implemented in the Ministry of Social Welfare, Anambra State	142
5.7	Discussion of findings.....	146
5.7.1	Targeting	146
5.7.2	Implementation of efficacious interventions	146
5.7.3	Programme implementation.....	148
5.7.4	Integration of programmes.....	148
5.7.5	Women Empowerment.....	149
5.7.6	Programme coverage.....	150

5.7.7	Utilisation of programmes	150
5.7.8	Programme sustainability	150
5.8	Conclusion.....	151
6	Programme theory and process evaluation of selected programmes in study states	152
6.1	Introduction	153
6.2	Literature overview.....	153
6.2.1	Implementing science and nutrition.....	153
6.2.2	Process evaluation through programme impact pathways.....	154
6.2.3	Application of theory-based programme impact pathways and process evaluation nutrition	155
6.3	Objectives of the Phase (2b).....	157
6.4	Methodology.....	157
6.4.1	Evaluation approach and dimensions.....	157
6.4.2	Study design.....	158
6.4.3	Sample selection	158
6.4.4	Data collection methods.....	159
6.4.5	Data Analysis.....	162
6.4.6	Limitations.....	163
6.5	Results and discussion	163
6.5.1	Programme impact pathways.....	164
6.5.2	Implementation dimensions	168
6.6	Synthesis of programme evaluation	174
6.7	Programme implications.....	175
6.7.1	Agriculture.....	176
6.7.2	Early Childhood Development Education	177
6.7.3	Environmental Sanitation	179
6.7.4	Skills Acquisition.....	180
6.7.5	Convergence of sectors and programmes	181
6.8	Conclusion.....	182
7	Political economy analysis of nutrition in Anambra and Kebbi states Nigeria	184
7.1	Introduction	186
7.2	Literature overview.....	186
7.2.1	Political commitment and prioritisation of the Food and Nutrition Policy	186

7.2.2	Policy Window of Opportunity.....	187
7.2.3	Stakeholder and institutional analysis	188
7.2.4	Scaling up nutrition strategic objectives comparison	189
7.3	Justification	193
7.4	Objectives.....	193
7.5	Methodology.....	193
7.5.1	Study design	193
7.5.2	Sampling.....	194
7.5.3	Constructs measured	194
7.5.4	The instrument.....	194
7.5.5	Data collection procedures	196
7.5.6	Internal validity and reliability	196
7.6	Data collection	197
7.6.1	The Workshop.....	197
7.6.2	Accessibility of participants	198
7.6.3	Data analysis approach	198
7.7	Limitations of the study	198
7.8	Results and discussion	199
7.8.1	Quantitative results from the workshop	199
7.8.2	Political commitment and prioritisation of Food and Nutrition Policy.....	201
7.8.3	Policy Windows of Opportunity	201
7.9	Qualitative results from the workshops and interviews.....	202
7.9.1	Political commitment.....	202
7.9.2	Agenda setting: Opportunities to advance nutrition in the states	205
7.9.3	Stakeholder and institutional analysis	211
7.10	Policy implications	217
7.10.1	Kebbi State	217
7.10.2	Anambra State	219
7.10.3	Implication of the findings on political will on mainstreaming nutrition-sensitivity ..	220
7.11	Conclusion.....	221
Chapter 8.....		222
8	Roadmap development and validation.....	222

8.1	Introduction	223
8.2	Contextualisation in public health	224
8.3	Justification for the development of a Roadmap	224
8.4	Objective of the phase	225
8.5	Development of a Roadmap for mainstreaming nutrition-sensitivity.....	225
8.5.1	How the roadmap was designed	227
8.5.2	Rigour	227
8.5.3	Expert content review.....	228
8.5.4	Pilot testing	228
8.5.5	Feasibility validation of the roadmap	228
8.6	The validated roadmap for mainstreaming nutrition	231
8.7	State variations in the roadmap	240
8.8	Conclusion.....	241
Chapter 9.....		242
9	Summary and Recommendations.....	242
9.1	Introduction	242
9.2	Findings from the study	242
9.2.1	Findings from the literature review	242
9.2.2	Empirical findings from the study.....	244
9.3	Contributions to knowledge and implications for practice	246
9.3.1	Literature.....	246
9.3.2	Philosophical and theoretical approach	247
9.3.3	Research design and methodology.....	248
9.3.4	Exploring subnational differences.....	248
9.3.5	Towards a roadmap	249
9.3.6	Who is expected to use the findings?.....	250
9.4	Limitations and future research.....	250
9.5	Recommendations	251
9.5.1	Recommendation for states and Nigeria	251
9.5.2	Recommendations for further research	252
9.6	Conclusion.....	252
References		254

Appendices..... 295
Addendum 392

LIST OF TABLES

Table 2.1: Summary of linkages on agriculture-nutrition systematic reviews	59
Table 2.2 Components of well-integrated early childhood package	65
Table 2.3 Summary of WASH-nutrition systematic reviews	72
Table 2.4: Summary of Social protection-nutrition systematic reviews	79
Table 4.1: Summary of data sources	103
Table 4.2 The study's stunting prevalence estimates (percent)	107
Table 4.3: Kebbi State LGA stunting estimate (percent)	112
Table 4.4 Anambra State LGA Stunting estimate (percent)	114
Table 5.1 Definitions of criteria used in the analysis of nutrition-sensitivity	126
Table 5.2 Criteria employed in assessing nutrition sensitive potential	128
Table 5.3 Number of documents used in analysing the nutrition-sensitivity of programmes in Anambra and Kebbi states	130
Table 5.4 Nutrition-sensitivity and potential scores in the Ministry of Agriculture in Anambra and Kebbi States	133
Table 5.5 Nutrition-sensitivity and potential scores of programmes in the Ministry of Education in Anambra and Kebbi States	136
Table 5.6 Nutrition-sensitivity and potential scores of the WASH programmes in Anambra and Kebbi states	140
Table 5.7 Nutrition-sensitivity of Social welfare programmes	143
Table 5.8 Summary of nutrition-sensitivity	145
Table 5.9 Summary of nutrition-sensitivity potential	145
Table 6.1 Implementation dimensions and their definitions	157
Table 6.2 List of interview participants	161
Table 6.3 Programme models and frameworks and primary data sources	162
Table 6.4 Summary of process evaluation by programme	174
Table 7.1 SUN country strategic objective scoring	192
Table 7.2 Components of the political commitment	196
Table 7.3 Workshop participants	197
Table 7.4 Number of interviews	197
Table 7.5 Total points achieved per section by state	200
Table 7.6 Joint display of political commitments: subscale description and comparison	214
Table 7.7 SWOT analysis of the political economy in Kebbi and Anambra states, Nigeria	217

Table 8.1 Some of the research findings that informed the roadmap	226
Table 8.2: Summary of changes from expert review and pilot testing.....	228
Table 8.3 Qualitative and quantitative validation results (n = 9)	230
Table 8.4 Roadmap for mainstreaming nutrition-sensitive actions at the state level	233
Table 8.5 Roadmap for generating political commitment in Nigerian states.....	235
Table 8.6 Roadmap for Kebbi State	236
Table 8.7 Roadmap for Anambra State.....	238
Table 8.8: Some of the difference between Anambra and Kebbi states.....	240

LIST OF FIGURES

Figure 1.1: Mainstreaming Nutrition Initiative Assessment Framework, a theoretical framework used in this study, Source: Menon et al (2011).....	34
Figure 2.1: Regional comparison of malnutrition in Nigeria, Source: Adapted from NPC and ICF (2014) data.	43
Figure 2.2: Determinants of Child Nutrition and interventions that address them, Source: UNICEF (1990).....	47
Figure 2.3: Conceptual pathways of agriculture to nutrition, Source: Herforth and Harris (2014).....	51
Figure 2.4: Effectiveness of WASH interventions to reduce diarrhoea morbidity, Source: UNICEF (2009).	70
Figure 2.5: Various kinds of social assistance, Source: Freeland and Cherrier (2015).	74
Figure 3.1: Mainstreaming Nutrition Assessment Initiative Framework, Source Menon et al. (2011).	85
Figure 3.2: Diagram of study phases.....	93
Figure 4.1: Correlation between the study's estimate and IHME estimate.	109
Figure 4.2: Correlation between the study's estimate and the NDHS.....	109
Figure 4.3: Comparison of this research's SAE stunting estimates vs Osgood-Zimmerman et al (2018) estimates, Source: Based on Osgood-Zimmerman et al (2018) estimates and this study's research findings.....	111
Figure 6.1: Hierarchy of study participants and categorisation.....	159
Figure 6.2: Data collection for process evaluation.	160
Figure 6.3: Hypothesized Theory-based Program Impact Pathway for Agricultural Transformation Agenda Support Program-1.	164
Figure 6.4: Theory-based Program Impact Pathway for Early Childhood Development education.....	165
Figure 6.5: Theory-based Program Impact Pathway for Environmental Sanitation.....	167
Figure 6.6: Theory-based Program Impact Pathway for Skills Acquisition.	168
Figure 7.1: Malnutrition indicators in Senegal, Nigeria and Bangladesh, Source: SUN, 2018.....	189
Figure 7.2: Radar plot from PCOM-RAT workshop in Anambra and Kebbi states.....	200
Figure 8.1: Processes employed in roadmap development.....	227

LIST OF APPENDICES

Appendix 1: Ethics approval letter.....	295
Appendix 2: Sample letter of Introduction	296
Appendix 3: Nutrition-sensitivity assessment checklist.....	298
Appendix 4: Identification of potential of programme to be nutrition-sensitive.....	300
Appendix 5: List of documents reviewed and sources	301
Appendix 6: Nutrition-sensitivity and potential scoresheet	305
Appendix 7: Summary of nutrition-sensitivity and potential in study state.....	346
Appendix 8: In-depth interview guide for service delivery workers.....	354
Appendix 9: Exit interview guide for service delivery beneficiaries	356
Appendix 10: Observation guide.....	357
Appendix 11: Suggested areas for improvement for programs	359
Appendix 12: Political Commitment and Opportunity Measurement – Rapid Assessment Tool Questionnaire	365
Appendix 13: PCOM-RAT Score Sheet	380
Appendix 14: Validation Matrix for developed roadmap	387

THE FORMAT OF THE DISSERTATION

The format of the dissertation consists of a combination of traditional format and chapters ready to be converted to manuscripts. In addition, the results chapter format is based on the nature of the data whether qualitative or quantitative. This format would be followed by a summary of the research results that indicates the scientific contribution of the study (in this case, Chapter 9).

The introductory chapter sets the context of the research. It highlights the importance of nutrition for different spheres of development and continues to show that despite the significance of nutrition, Nigeria has not managed to reduce malnutrition thus denying numerous children the gains of adequate nutritional status. The chapter also sets out the aim and objectives the research seeks to achieve and the contributions the study will make.

This thesis has nine chapters. Chapter 1 introduces the argument, concepts and general design. Chapter 2 presents recent literature regarding malnutrition prevalence, the need for nutrition sensitivity and nutrition-sensitive linkages. The chapter attempts to aggregate current knowledge on established linkages between nutrition and nutrition-sensitive sectors, laying a foundation for pathways that would be used in subsequent chapters. In addition, the chapter identifies gaps in the literature and proposes a research agenda to fill it.

Chapter 3 explains the framework and approach that guide the research. It begins with the philosophical backing adopted for the study, and continues to explain the sample selection, data collection and analysis protocols.

Chapter 4 to Chapter 8 show the findings of the study in detail. Chapter 4 presents the outcome of the small area estimation of malnutrition in Nigeria – Phase 1. Chapters 5 and 6 present the results for Phase 2, the operational phase, Chapter 7 presents the results of the political economy analysis. Chapter 8 presents the roadmap developed. This chapter harmonises the findings from the previous chapters into a roadmap. Furthermore, it advances the theory of contextualisation and makes cases for interventions in the political, operational and epidemiological domains. The validation of the roadmap is also discussed. Chapter 9 concludes the thesis with recommendations, contribution to knowledge, limitations and highlights areas for future research.

A lot of the data and findings of the dissertation were qualitative, and, in some chapters, it has guided the presentation of results as results and interpretation.

The referencing style used in this dissertation is the Harvard reference format 1 (deprecated). All references are listed after Chapter 9 in a combined list. Guidelines for the referencing style is attached as Addendum 1.

The contributions to this work are as follows:

	Contribution	Statement of contribution
Candidate	Ezekannagha Oluchi	<p>Conceptualisation: Defining the research problem, Defining the methodology and resources.</p> <p>Data collection: data collection in Nigeria and conducting interviews. One field worker used during workshops and the validation of roadmap. Responsible for the modelling and SAE of prevalence.</p> <p>Data analysis: Capturing all data and applying qualitative and qualitative analysis on all data</p> <p>Write up: Developing the roadmap, validation and writing the chapters</p>
Other authors	Xikombiso Mbhenyane (55%)	<p>Main promoter and supervised the conceptualisation and development of protocol, Data quality checks of all data analysis and results interpretation, Co-developed the roadmap and did the review of the maps and the validation instrument prior to sending to experts.</p> <p>Responsible for corrections and marking of dissertation and overall quality control and adherence to plan of actions.</p>
	Scott Drimie (25%)	<p>During conceptualisation Aided study design, analysis and writing. Data quality checks of all data analysis and results interpretation, reviewed and validated the PIP developed, Co-developed the roadmap and did the review of the maps and the validation instrument prior to sending to experts.</p> <p>Contribution to the write up process.</p>

	Dieter Von Fintel (15%)	Trained the candidate on the SAE method. Co- developed the SAE prevalence estimates and Lead the development of Chapter 4 data analysis, and the co-writing methodology section of chapter 4. Participated in the biweekly discussions of the results.
	Busie Maziya-Dixon (5%)	Data collection in Nigeria: provided the fellowship and finance from IITA (Ibadan, Nigeria) and other resources. She was responsible for quality checks on data collection processes and procedures on site in Nigeria.

The candidate obtained the following training in preparation for the study. They include qualitative study short course from Stellenbosch University, Mixed methods Training from the African Doctoral Academy and Fundamentals of Implementation Science from the University of Washington.

Some of the findings of this dissertation has been communicated in scientific meetings or accepted for future meetings. It includes:

- a. Ezekannagha, O., Mbhenyane, X. and Drimie, S., (2017) Development of A Roadmap for Mainstreaming Contextual Nutrition-Sensitive Interventions at Kebbi And Anambra States, Nigeria. In Annals of Nutrition and Metabolism (Vol. 71, Pp. 743-743). Allschwilerstrasse 10, Ch-4009 Basel, Switzerland: Karger. Presented at the IUNS 21st ICN International Congress of Nutrition, held at Buenos Aires, from 15 - 20 of October 2017. Poster presentation.
- b. Ezekannagha O., Mbhenyane X., Drimie S., Von Fintel D., and Maziya-Dixon B. (2018) Using Program Impact pathway to evaluate the potential of Early Childhood Development Education to contribute to nutrition in Nigeria. South African Journal of Clinical Nutrition. 31(3) Supplement 1. Page S40. Presented at the Nutrition Congress 2018, held at Johannesburg from the 5 -7 September 2018.
- c. Ezekannagha O., Mbhenyane X., Drimie S., Von Fintel D., and Maziya-Dixon B. (2018) Political economy of nutrition in Anambra and Kebbi States, Nigeria. 5th Global Symposium on Health System Research 2018. Held at Liverpool, United Kingdom. <http://healthsystemsresearch.org/hsr2018/wp-content/uploads/2018/10/OralAbstractBook-Final.pdf>
- d. O. Ezekannagha, B. Maziya-Dixon, D Von Fintel, S. Drimie, X. Mbhenyane (2018). Proposing a conceptual framework for developing contextual solutions for double burden of malnutrition: Application of the mainstreaming nutrition initiative assessment. International Symposium on Understanding the Double Burden of Malnutrition for Effective Interventions. 10- 13 December. IAEA, Vienna.

- e. Ezekannagha O., Drimie S., Von Fintel D., Maziya-Dixon B. and Mbhenyane X (2019) Barriers and Facilitators to Implementing the Environmental Sanitation for Optimal Child Nutrition: Theory of Change-based Process Evaluation. 10th annual CUGH Global Health conference. Chicago. United States of America. March 8 – 10.

CHAPTER 1

1 INTRODUCTION

1.1 The Problem

Malnutrition in all forms exists among Nigerian children. By all expectations, the numerous efforts of government and non-governmental agencies it was expected that undernutrition would be reduced significantly. These efforts include the development of a federal government nutrition plan of action (Nigerian National Planning Commission, 2004), National Primary Healthcare Development Agency nutrition components, and the Maternal New-born Child Health Weeks (FMOH-N, 2007). Although these efforts have reduced undernutrition, as evidenced by the reduction of stunting from 41 percent in 2008 to 37 percent in 2013 (NPC, 2009; National Population Commission and ICF International, 2014), it is still persistently high. The dire implications of malnutrition range from high disease burden, impaired child development, low cognition, and even poor national economic development (Dewey and Begum, 2011). Undernutrition is further complicated by being irreversible after the age of two, in the specific case of stunting, and often invisible until it is harmful or fatal.

On the other hand, overweight and obesity are on the rise in Nigeria, including among children (Ene-obong *et al* 2013). This often co-exists with undernutrition in communities and regions. Considering this, preventing child overweight and obesity is an essential step towards clearing resources that could otherwise be utilised to confront non-communicable diseases. Continually high undernutrition and emerging overweight/obesity call for innovative nutrition policymaking and programming in Nigeria.

The malnutrition profile in Nigeria is further complicated by inequalities across the country. Digging deeper into state-level (Nigeria's sub-national demarcation) malnutrition profiles show stunting levels as high as 50 percent to 60 percent in some parts of the country (NPC and ICF, 2014). For example, Kebbi State in Nigeria has the highest stunting rate (61 percent) in the country, while Enugu State has the lowest stunting rate (12 percent), but the highest rate of child overweight (1.9 percent) (NPC and ICF, 2014). The inequalities are expected given the vast differences that exist in ethnic composition, political affiliations, demographic, and physical characteristics across regions. These characteristics have been known to influence child malnutrition. Oil-rich states

such as Akwa Ibom received 8.9 billion Naira (₦) in March 2016, eight times as much as that which Ogun State received (₦ 1 billion) from the monthly Federal Government allocation as revenue accruing states (National Bureau of Statistics, 2016). Financial resources affect programme design, institutions, training, service delivery, and programme monitoring, which are essential arms of programme operations (Saha *et al* 2015). These differences, both in malnutrition and economy are also expected across Local Government Areas in each state. Exploring deep into the variation of malnutrition profiles across regions and states provides a unique opportunity for targeting, for formative research, and contextualisation of solutions. This approach is rarely employed, one-size fits all programmes and solutions dominate the policy landscape.

Having identified malnutrition as a problem in Nigeria, how best can the menace be tackled? The country already has multiple nutrition-specific interventions developed at the National level by the Federal Ministry of Health, in conjunction with foreign partner agencies. These programmes include Maternal Newborn and Child Health Week (MNCHW), Saving One Million Lives (SOML) and most recently Community Health Influencers, Promoters and Services (CHIPS). This study postulates that the continued persistent, prevalence, and incidence of malnutrition needs more innovative approaches other than the nutrition-specific interventions and programming. The missing link might be mainstreaming nutrition into nutrition-sensitive sectors such as agriculture, water, sanitation and hygiene, education and social protection amidst other local factors.

Considering that nutrition-sensitive interventions exist in all states and Local Government Areas (LGA) in Nigeria (with varying quality and quantity), how can these existing interventions be strengthened for optimal nutrition outcomes? Extensive research has been conducted on the potential of these nutrition-sensitive programmes to influence nutrition outcomes and nutrition-specific interventions (Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013; Allen & de Brauw, 2018).

A recent country-level analysis indicates that safe water and women's education had the most significant effect on the reduction of undernutrition (Smith & Haddad, 2015). Future recommendations from similar empirical studies include underlying causes such as sanitation and gender equality (Smith & Haddad, 2015). Agriculture, water, sanitation and hygiene (WASH), social welfare and education are the most nutrition-sensitive sectors (Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013). The pathways through which these sectors influence nutritional status are generally known and established. Agriculture influences nutrition through income, own food production and empowerment of women (Herforth & Harris, 2014); WASH affects nutrition

through improved hygiene practices and access to safe water and adequate sanitation (Smith & Haddad, 2015; Pickering & Alzua, 2016).; Improved parental access to education and nutrition curriculum improvements influences child malnutrition (Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013). While these studies have described and asserted the potential of these sectors and programmes to improve nutritional outcomes, the effects of programmes and interventions managed solely by the government have been limited in Nigeria. Exploring nutrition-sensitivity of large-scale programmes implemented by governments may provide valuable information for decision-makers and programme designers.

In addition to ensuring that programmes are nutrition-sensitive, implementation of existing programmes is critical for successful outcomes of the programmes. Nutrition-sensitive sectors such as agriculture, social welfare, education and WASH have numerous programmes being implemented all over Nigeria. It remains to be seen if its lack of impact is as a result of theory failure or implementation failure (Rychetnik et al 2002; Bartholomew, 2011). Thus, a process evaluation of interventions is critical for outcome interpretation and understanding the interchangeability of the benefits of the intervention (Rychetnik et al 2002; Bartholomew, 2011). A process evaluation ensures the feasibility of a theory or the implementation improvement. These implementation and theoretical issues are vital learning tools for future implementation and design of interventions. With increased investments in nutrition-sensitive sectors by humanitarian bodies and governments alike (Angood et al 2016), being able to assess their impact on nutrition is a first step to evaluating their effectiveness and efficacy in combating malnutrition.

Despite the significance of nutrition-sensitive programmes or the value of adequate implementation and relevant theory, political commitment appears to be the deciding factor in the success of nutrition interventions, programmes and policies. This makes sense, as implementation requires the cooperation of people, processes, and resources (Gillespie, 2013; Sunguya et al 2014). Addressing the political, institutional and policy-related challenges is an essential factor in mainstreaming nutrition (Acosta et al 2012). Measurable indicators of political “commitment” include: (1) the proportion of funding committed by the government at state level to the nutrition agenda, (2) the salience of nutrition in crucial state policies and programmes evidenced by speeches and policies, and (3) the level of coordination among various sectors or relevant governmental constituent parts (Reich & Balarajan, 2012; Fox et al 2013; Gillespie, 2014). Given the influence of governance, it is vital that the state government structures and even local government, be involved in addressing their unique malnutrition profile (Haddad, Acosta & Fanzo, 2012).

Though these arms or domains stand alone, they do not exist in a vacuum. Malnutrition exists and is a function of both political commitment and implementation of both nutrition-specific and nutrition-sensitive programming. Altogether, this interaction is what makes malnutrition complicated, but also affords it the opportunity to be tackled from more than one perspective. The interaction of these domains in nutrition has not been applied sufficiently to be considered a true phenomenon. This dissertation thus seeks to identify how factors in each of these domains can be merged to develop a roadmap for mainstreaming nutrition-sensitivity.

It thus appears that nutrition-sensitive interventions are the link between nutrition specific intervention and economic growth on the pathway to adequate nutrition.

1.2 The objectives of the study

The main objective of the study was to develop a roadmap for mainstreaming nutrition-sensitive interventions in Kebbi and Anambra States.

Specific objectives include

1. To estimate the LGA prevalence of malnutrition in Nigeria
2. To explore the operations of nutrition-sensitive programmes in Anambra and Kebbi States
3. To explore the political economy of nutrition in Anambra and Kebbi States
4. To develop a roadmap for mainstreaming nutrition sensitive interventions

1.3 Importance of the study

This study is important because it explored multiple domains that might help the development of a roadmap for mainstreaming nutrition-sensitivity. As will be highlighted in the literature review, effective nutrition-sensitive programmes have the potential to impact malnutrition. Martorell and Young (2012) observed that:

“Improved environmental sanitation and hygiene, safe water, primary health care, and other efforts to control infections will also help to prevent stunting and wasting” (p233)

The results of this study may be utilised to develop improved nutrition-sensitive strategies at sub-national levels. Menon et al. (2011) summarised the importance of this research on the development of solutions as follows:

A comprehensive assessment that examines all three domains can be a powerful approach to strategic development of a national nutrition agenda, one that is ultimately acceptable to all key stakeholders. This approach can lead to solutions that are relevant to the most salient problems in a given country or context, feasible to implement within the programmatic setting, and acceptable and appropriate within the socio-political, cultural, and economic context. (p108)

It is increasingly important for states and countries to be able to utilise the implementation, epidemiological, and political data for immediate decision making. The identification of some likely variables and methods for this assessment, the use of rich qualitative data and workshops to explore implementation and political commitment in conjunction with small area estimation is used for identifying LGAs with high burden of malnutrition, implementation factors, and political commitment for realistic solutions. The study provides a conceptual starting point for the development of similar roadmaps in the future.

1.4 The theoretical framework for the study

With the emphasis on sustainable malnutrition reduction today, programme designers are faced with the challenge of developing and implementing malnutrition strategies that are effective and efficient. Governmental and non-governmental mandates are requiring increased justification and programme results especially when the programmes are externally funded. Programme designers must thus respond by designing effective strategies. Context is thus considered to be significant.

While the education field has paid considerable attention to contextualisation (Ballantyne, 2007; Raven, 2011), the same emphasis has not been paid in the nutrition field. In this vein, the relationship between malnutrition profiles, implementation, and political commitment has been neglected. This research seeks to remedy that on a modest scale. More specifically, the relationship between these domains is employed to develop a roadmap.

No other study shows the direct tie-in between these domains, which were proposed by Menon et al. (2011) as a mainstreaming nutrition initiative framework (Figure 1.1). The framework incorporates the three broad domains incorporated in this study. As shown in the framework, the epidemiological, operational and socio-political domains are important domains that affect the success of malnutrition efforts. There are trade-offs that exist in this interaction that implies contextualisation.

As shown in the Figure 1.1, this study has placed the focus on the implementation stage of the programmes at the state level in Nigeria. Within that context, these domains represent an important consideration for malnutrition profiles and prevalence estimates, implementation processes, and political support to support the design of how best the n

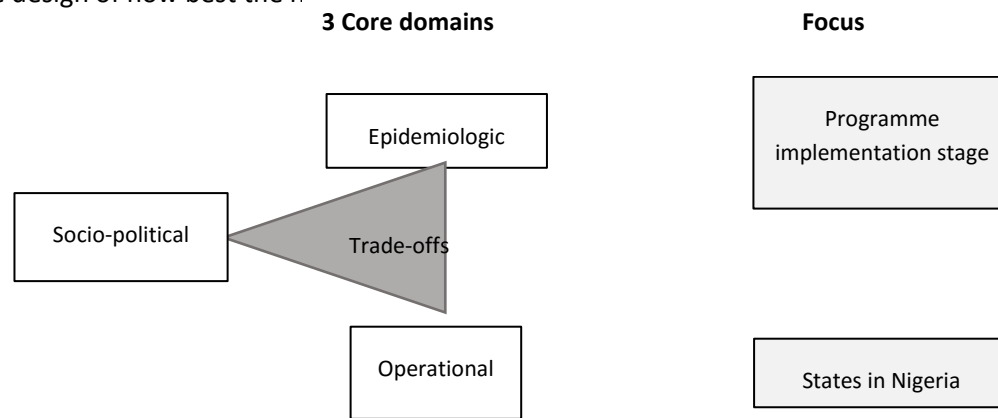


Figure 1.1: Mainstreaming Nutrition Initiative Assessment Framework, a theoretical framework used in this study, Source: Menon et al (2011).

1.5 Research approach of the study

This study was a convergent parallel mixed methods study, with the collection of both qualitative (operational and socio-political domains) and quantitative data (Small area estimation of stunting prevalence), which were then integrated and used to develop contextual roadmap for Anambra and Kebbi States.

1.6 Research questions

The primary research question of the study was:

Can a contextualized roadmap for integrating nutrition outcomes be developed using the Mainstreaming Nutrition Initiative Assessment (MNIA) framework?

To answer the primary research question, these secondary research questions were employed:

1. What is the LGA-level distribution of malnutrition in Nigeria?
2. What are the operational realities in the nutrition-sensitive sectors in Anambra and Kebbi States?
3. What are the socio-political realities in the nutrition-sensitive sectors that might affect/influence the nutrition-sensitive agenda in Anambra and Kebbi States?

1.7 Delimitations

The delimitations employed in this study were determined by a core decision to gain a better understanding of the complete interaction between epidemiological, operational and political factors regarding malnutrition. To do this, the researcher only used two states and programmes, or activities implemented by these states. The use of states did not allow the researcher to gain the views of stakeholders involved with the federal government or local government levels.

A second delimitation employed by the researcher was the selection of only one programme per sector, per state. Due to the nature of the in-depth methods employed, an increase in programme number would have meant the study would be unfeasible in the stipulated time.

The nature of programming design and implementation in states in Nigeria led to the focus of analysis on the implementation and lack of agenda-setting. The researcher believed that modifications were easier than developing new programmes.

1.8 Assumptions

This study adopts a pragmatic stance because it is concerned with “*what works*” and the development of a practical solution for malnutrition in Nigeria (Creswell, 2013). “*To a pragmatist, the mandate of science is not to find truth or reality, the existence of which is perpetually in dispute, but to facilitate human problem solving*” (24, p. 884). The onus of the MNIA framework is the development of context-specific solutions, and its stance is therefore; entirely pragmatic.

The current study thus assumes that obtaining scientific and systematic evidence on the need for context-specific nutrition-sensitive actions will convince decision makers to modify existing programmes to target the unique nutrition profiles of each state.

1.9 Operational definitions

To provide clarity of concepts, the following definitions have been adopted by this study:

1. Programmes – This study defines programmes as “a set of related measures or activities with a particular long-term aim” (Oxford, 2015).
2. Ministry – A government department headed by a commissioner, appointed by the state government (Oxford, 2015).
3. Parastatal - (of an organisation or industry, especially in some African countries) having some political authority and serving the state indirectly (Oxford, 2015). In the states, these institutions are of the ministry, but most have their own building, budget, and are managed independently. They only report to the commissioner in charge of the Ministry.
4. Political commitment is the ‘intent and sustained actions over time by societal actors to achieve the objective of reducing and eliminating the manifestations and causes of hunger and undernutrition’ (te Lintelo & Lakshman, 2015:p282).

5. Operational research can be described as an activity with a focus on explaining the link from programme input to programme outcomes (WHO & Global Fund, 2007).
6. Nutrition-specific interventions as defined by Ruel and Alderman (2013) are interventions that address the immediate determinants of foetal and child nutrition and development, including adequate food and nutrient intake, feeding, caregiving, parenting practices, and low burden of infectious diseases.
7. Nutrition-sensitive interventions as defined by Ruel and Alderman (2013) are actions, policies or programmes that address the underlying determinants of foetal and child nutrition and development – food security, adequate caregiving resources at the maternal, household and community levels, and access to health services and a safe and hygienic environment – and to incorporate specific nutrition goals and actions.
8. Mainstreaming nutrition has been defined by Pelletier et al. (2011) as moving nutrition into the mainstream of a given country's or region's policies and programmes.
9. Contextual nutrition programming is ensuring that the application of science and evidence is responsive to local environments or contexts when designing policies and programmes to address malnutrition.
10. Social protection vs Social welfare in this dissertation: The sector social protection has been used interchangeably with social welfare. In Nigeria, the ministry in charge of social protection programmes and activities is known as 'Ministry of Social Welfare'.
11. Three tiers of government exist in Nigeria – the federal, state and LGA.
 - a. The Federal Government of Nigeria is headed by an elected President and have elected Senators and House of representatives in the legislative arms.
 - b. States – Nigeria is further divided onto 36 states and 1 Federal Capital Territory. The states are manned by an elected governor with its own legislative arm.
 - c. Local Government Areas – Each state is further divided in LGA, headed by LGA chairpersons and councillors. Nigeria has 774 LGAs in total. LGA is the equivalent of municipalities in other countries.

1.10 Conclusions

This chapter has provided the setting in which the study was conducted. It has described the insurmountable problem that malnutrition is and its subsequent impact on human development. The objectives, approach, and framework have been briefly discussed. An overview of the chapters has also been tabled in addition to an argument on how the study will contribute to mainstreaming nutrition and provide a contextual solution in nutrition. Numerous pathways, impact analysis, and concepts have been discussed in the body of literature as to how nutrition-sensitive sectors impact nutrition. The review of literature in the next chapter begins with malnutrition prevalence and posits itself on the said nutrition-sensitive linkages.

CHAPTER 2

2 LITERATURE REVIEW

Abstract

Nutrition has been established as vital for national and individual development including education, cognition, and health. These gains that nutrition portend makes it ethically wrong for any child to be malnourished. Besides health-sector based interventions, other sectors can play supportive roles in the fight against malnutrition, especially in presenting a preventive front to the menace.

The fundamental aim of this literature review is to aggregate scholarliness in the field of mainstreaming nutrition-sensitive interventions. The subject of interest here is the nutrition situation in Nigeria, the case of nutrition-sensitive sectors, the importance of nutrition-sensitivity, and literature on linkages between the nutrition-sensitive sectors and nutrition itself.

The literature has also focused on recent literature, except where fundamentally valid for the arguments. It was done, given that literature on nutrition and nutrition-sensitivity are mature topics, though some linkages might be emerging.

The chapter begins with malnutrition trends globally and in Nigeria, then nutrition-sensitivity frameworks and linkages with agriculture, WASH, social welfare, and education to nutrition.

Nutrition-sensitive sectors through pathways and mediators influence nutritional status and must be strongly considered for optimum nutrition.

2.1 Introduction

This literature explored the themes of malnutrition and nutrition-sensitive linkages, offering a foundation for the current study. The review begins with a funnel approach to malnutrition prevalence, beginning with the global prevalence and then Nigerian prevalence. Next, a review of the linkages between nutrition-sensitive sectors: agriculture, education, WASH and social protection and nutrition is made. This review includes current linkages in the literature and aggregation of systematic reviews, if any. Throughout the literature review, the need for additional research in this area, arguments for, and contributions of the current study are offered. This review ends with the proposed current study context. Nutrition-sensitivity is the central theme in this study. Other specific themes considered in this study such as SAE, implementation research, and political commitment are reviewed in the various chapters.

2.2 Global prevalence of malnutrition

Malnutrition in the world is a complex phenomenon with various forms affecting millions of the world's citizens. Two billion people are micronutrient deficient, while another two billion adults are overweight or obese (Global Nutrition Report, 2017). Africa contributes significantly to these numbers: 59 million children are stunted, 10 million adults are overweight, and 52 million children are wasted (UNICEF, WHO & World Bank Group, 2017). According to this report, Africa and Oceania (excluding Australia and New Zealand) regions experience slow or no progress in reducing stunting from 2000 – 2016 (UNICEF, WHO & World Bank Group, 2017). Africa decreased by only 18 percent, while Asia (excluding Japan), Latin America, and the Caribbean (LAC) had a 37 percent and 40 percent reduction respectively (UNICEF, WHO & World Bank Group, 2017). In contrast, overweight kept increasing in the 2000-2016 period in all regions: in Africa by 4 percent, Asia by 38 percent, LAC by 3 percent and Oceania by 86 percent (UNICEF, WHO & World Bank Group, 2017). Though the general rate of increase in overweight populations in Africa is low, the number of overweight children almost doubled in the period 2000–2016, increasing by 48 percent (UNICEF, WHO & World Bank Group, 2017). The bulk of these indices were found in Low and Middle-Income Countries (LMIC) where 66 percent of all stunted children, 44 percent of all overweight children, and 75 percent of all wasted children live (UNICEF, WHO & World Bank Group, 2017; World Bank, 2017).

2.3 Prevalence of malnutrition in Nigeria

Nigeria continues to have one of the highest undernutrition burden in Sub-Saharan Africa (SSA) and the world (Development Initiatives, 2018). Yet, some progress is occurring: in 2008, stunting prevalence was 40.6 percent, by 2013 it had reduced to 36.8 percent (NPC & ICF, 2014). Education, higher wealth index, and assisted childbirth are factors that appear to protect children from stunting in Nigeria (Akombi et al, 2017). This is unlike Kenya where underweight is reducing and stunting rates have remained stagnant between 2003 (36.1 percent) and 2008 (36.5 percent) (Matanda, Mittelmark & Kigaru, 2014). Varying levels of malnutrition have been identified in various study contexts in Nigeria. In a semi-urban area in Benue State, North-Central Nigeria, Kpurkpur et al (2017) found a prevalence of 19.1 percent stunting and 18.9 percent wasting. In another study in Imo State, South-East Nigeria 23.6 percent stunting and 28.6 percent wasting prevalence was reported in a rural area (Duru et al, 2015). Another prevalence study in Oyo State, South West Nigeria reported a 32.9 percent stunting prevalence (Bamisaye & Adepoju, 2018). It is clear from these studies that the prevalence of stunting and wasting varies across geographic location in the country.

With regards to child overweight, there was a slight reduction in child overweight between 2008 and 2013 (NPC and ICF, 2014). Adult overweight and obesity currently stand at 33.3 percent and 11 percent respectively (NPC & ICF, 2014). Adult overweight and obesity are still emerging compared to other countries in Africa with established overweight and obesity challenges such as 26.3 percent and 35.9 percent overweight and obesity respectively in South Africa (Statistics South Africa, 2017).

As expected, variation exists in the different economic and demographic variables in Nigeria. Children in the poorest households were almost three times more likely to be stunted when compared to children in the wealthiest households. They were also more likely to be wasted (21.9 percent) than children in the most affluent households (13.9 percent). Even childhood obesity has a higher prevalence in the most impoverished household (4.9 percent) compared to wealthiest households (3.2 percent) (NPC & ICF, 2014). The strong association between childhood obesity and poverty has been shown in a review of 283 articles, linking low-income, low socio-economic state or low educational status, and obesity in LMIC (Niessen et al, 2018). A somewhat similar trend, but slightly different in gradients, have been reported in South Africa where the highest wealth quintile had the lowest prevalence of overweight (9.3 percent),

and the middle quintile followed closely with 11.3 percent, and then subsequently the second, fourth, and lowest quintile had rates of 13.3 percent, 14.9 percent, and 15.6 percent respectively (Statistics South Africa, 2017).

The national prevalence of malnutrition described above does not provide a full reflection of the status of malnutrition in Nigeria. Regional differences also exist in child malnutrition. The trio of stunting, underweight, and wasting was higher in the Northern states than the Southern states (NPC et al, 2014). Among the six geopolitical zones in the country, the North-West appears to be the worst zone, as shown in Figure 2.1. States like Jigawa, Kebbi, Kaduna, Sokoto, Zamfara, Bauchi, and Katsina have prevalence higher than 50 percent. Some states with high stunting rates also had high overweight rates (such as Yobe with a 49.3 percent stunting rate and 10.7 percent child overweight, Kebbi had a 60.6 percent stunting rate and 11.6 percent child overweight). The highest overweight rate in the south was found in Edo State at 8.9 percent and stunting at 15.8 percent, followed by Anambra State with 7.4 percent overweight and 18.4 percent child stunting (NPC & ICF, 2014).

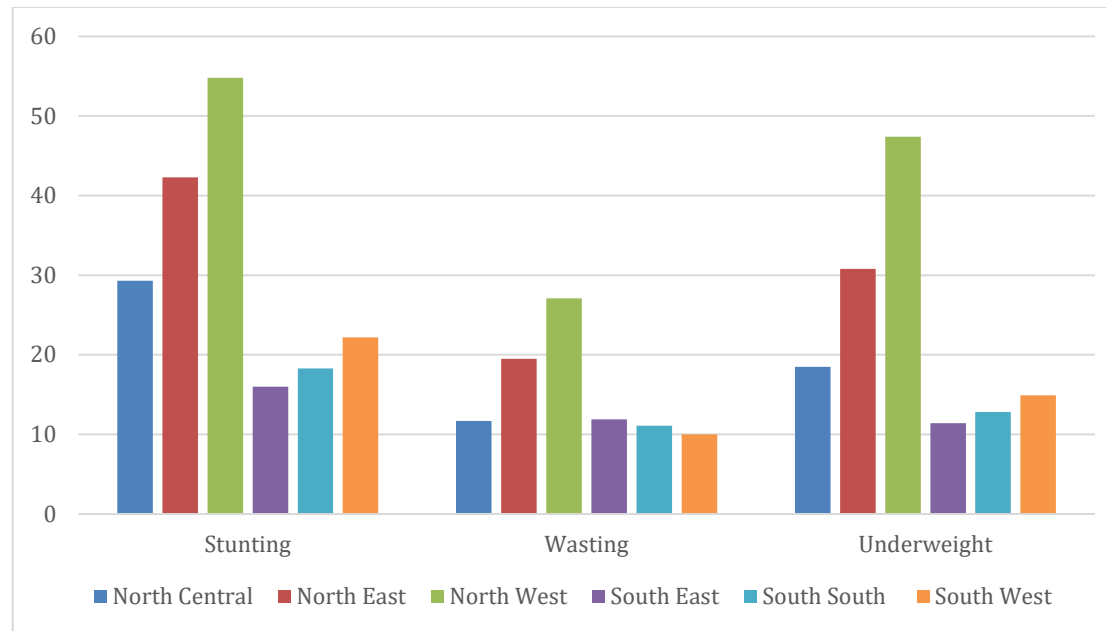


Figure 2.1: Regional comparison of malnutrition in Nigeria, Source: Adapted from NPC and ICF (2014) data.

Regional trends are not peculiar to Nigeria, variations in malnutrition indicators exist within most countries. In Ethiopia for instance, regions such as Tigray, Afar, and Amhara had a prevalence above 50 percent while other regions such as Addis Ababa, Harari, and Gambella were as low as 21.7 percent, 30.3 percent, and 28 percent respectively (Haile et al, 2016).

The differences also exist along rural-urban divisions, with children based in rural settings more likely to be stunted (43.2 percent) than children living in urban areas (26 percent). Data from several studies in Nigeria and elsewhere suggest rural-urban variation with regards to malnutrition prevalence. In a study done in Lagos State, under-fives in rural areas were moderately stunted (22 percent), while those in urban areas had 7.3 percent prevalence (Senbanjo, Olayiwola & Afolabi, 2016). Gender differentials are more complex: more girls (4.2 percent) are overweight than boys (3.7 percent), and more boys (38.6 percent) are

stunted than girls (35 percent) (NPC & ICF, 2014). Some studies have postulated a different relationship between malnutrition and child gender. In a descriptive cross-sectional study of under-five children in Ekpoma, Nigeria, males were more underweight and wasted than females (3.2 percent/2.2 percent and 9.7 percent/9.4 percent), while female children were more likely to be stunted (Ozor, Iyamu & Osifo, 2014).

Wasting worsened in Nigeria from 2003 to 2008 and then in 2013 again, indicating more recent nutritional deficiencies. These varying malnutrition indices portend that current efforts are insufficient to meet all the Sustainable Development Goals and World Health Assembly targets.

2.4 National nutrition-sensitive programmes and initiatives in Nigeria

Given the prevalence of malnutrition and the slow decline described in Chapter 2.3 above, policies have been set by the Nigerian government to address this menace. These initiatives aim to address malnutrition from either sectoral or multisectoral angles, and it is summarised below.

2.4.1 Policies and programmes set in place to address malnutrition in Nigeria

Such policies include Agricultural Sector Food Security and Nutrition Strategy (FMARD, 2017), National Policy on Food and Nutrition (MBNP, 2016), Health Sector Component of National Food and Nutrition Policy (FMoH, 2014) and National Plan of Action on Food and Nutrition in Nigeria.

The Agricultural Sector Food and Nutrition Security Strategy has six specific objectives which include:

- (i) improve food security at national, community, and household levels,
- (ii) significantly reduce undernutrition,
- (iii) prevent chronic nutrition-related non-communicable diseases,
- (iv) increase knowledge of nutrition among the populace and integrate nutrition education into formal and informal training,
- (v) strengthen systems that build resilience for improved food and nutrition situation, and

- (vi) incorporate food and nutrition considerations into the federal, state and Local Government (LG) agricultural sector development plans.

The 2016 National Policy on Food and Nutrition seeks to:

- (i) improve food security,
- (ii) reduce malnutrition,
- (iii) reduce micronutrient deficiency,
- (iv) improve nutrition education,
- (v) ensure universal access to nutrition-sensitive social protection, and
- (vi) incorporate food and nutrition considerations into the federal, state, and local government sectoral development plans among others.

These policies embrace the multisectoral approach.

2.5 Interventions to address malnutrition

Different interventions have been employed to address the high burden of malnutrition described in both sections 2.2 and 2.3 above. These interventions include infant and young child feeding practices, antenatal and postnatal care, dietary practices, and education among others. These interventions are drawn mainly from the UNICEF conceptual framework (UNICEF, 1990). Immediate causes of illness and inadequate dietary intake usually create an endless loop. The loop begins with either malnourishment or an infection that results in more infection and more malnourishment. Underlying causes include household food insecurity, inadequate maternal care practices, and insufficient WASH and health services. Institutional structures, economic growth, and resources make up the basic causes which drive the underlying and immediate causes of malnutrition.

The UNICEF conceptual framework depicted in Figure 2.2 has long been applied in the nutrition world (UNICEF, 1990). There is a need to focus on the underlying causes, and basic causes which played a role in reducing malnutrition. These are found in sectors including education, WASH, agriculture, and social welfare. Interventions here are termed nutrition-sensitive interventions and can address the underlying determinants of foetal, child nutrition and development, and incorporate specific nutrition goals and actions (Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013).

As defined in section 1.7, nutrition-specific interventions are interventions that address the immediate determinants of foetal and child nutrition and development, including adequate food and nutrient intake, feeding, caregiving, parenting practices, and low burden of infectious diseases. Nutrition-sensitive interventions are actions, policies or programmes that address the underlying determinants of foetal and child nutrition and development – food security, adequate caregiving resources at the maternal, household and community levels and access to health services and a safe environment (Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013).

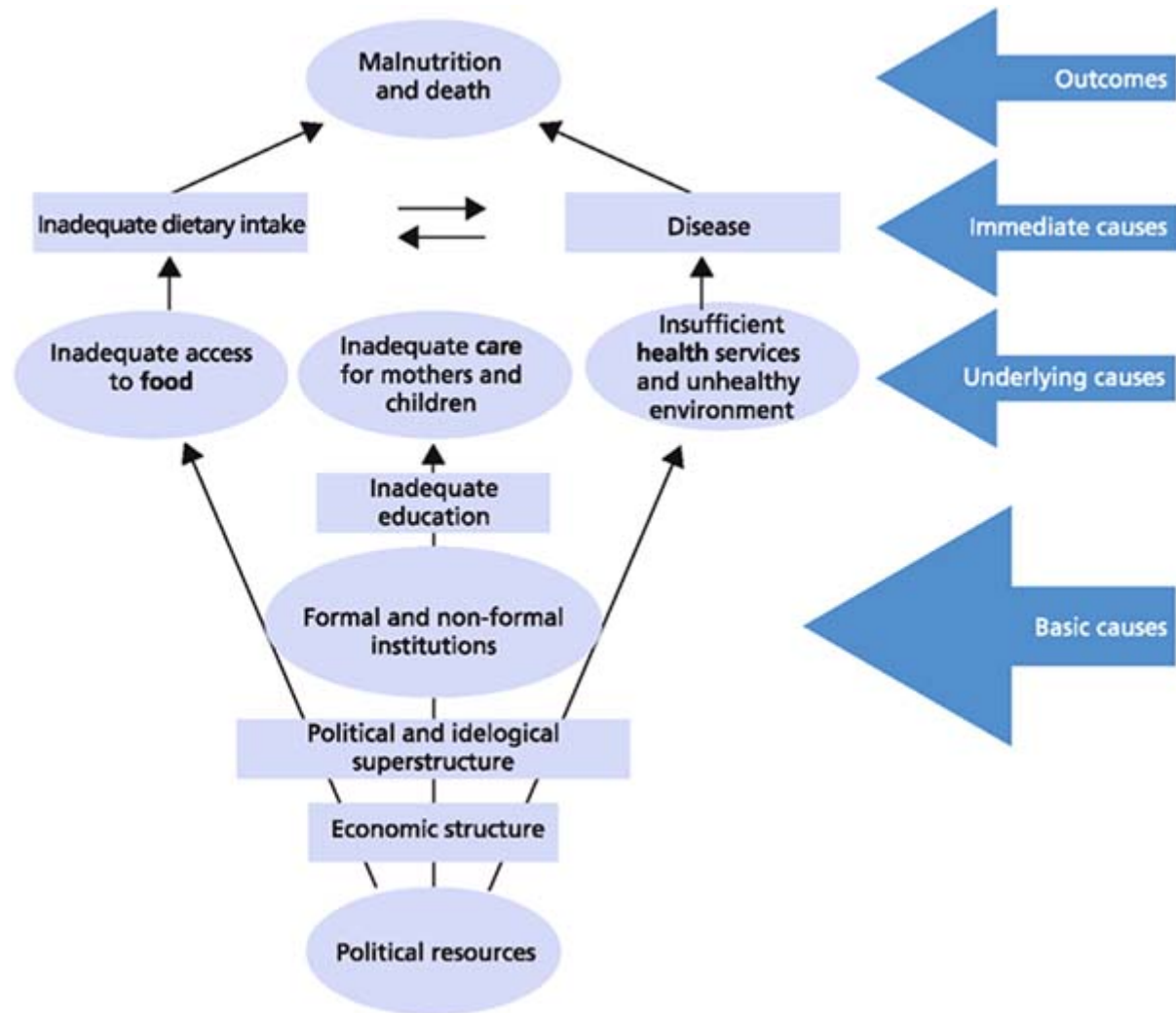


Figure 2.2: Determinants of Child Nutrition and interventions that address them, Source: UNICEF (1990)

2.6 The potential of nutrition-sensitive sectors

The slow pace of the reduction of undernutrition in the world and the continued increase of overweight/obesity has shown that despite the scale-up of nutrition-specific interventions, they are unable to sustainably reduce all kinds of malnutrition. This gives rise to the need for strengthening nutrition-sensitive interventions. The importance of these interventions can best be discussed under three points.

First, the inadequacy of nutrition-specific interventions alone to go about malnutrition leaves room for nutrition-sensitive interventions to try and augment the efforts of the former. If nutrition-specific interventions were scaled up to 90 percent coverage, only 36 percent of stunting at 36 months would be reduced, adequate nutrition-sensitive interventions with explicit nutrition goals would be needed to tackle the rest (Bhutta et al, 2008). A holistic approach would be to promote direct nutrition-specific interventions, the excellent potential they provide especially with regard to severe and moderate malnutrition along with nutrition-sensitive interventions/policies with broader principles of preventions (UNSCN & SUN, 2011). These sectors' primary importance arises from their contribution to immediate determinants of the UNICEF framework that they provide when such is done in a coordinated manner (Garrett, 2008). Investing in nutrition-sensitive interventions, especially in a coordinated manner, provides governments and humanitarian aid financiers platforms and access to other sectors. The addressing of malnutrition and other developmental challenges is what the Global Nutrition Report (2017) terms "triple duty actions" with the possibility of impacting multiple SDGs.

Secondly, resilience is enhanced by nutrition-sensitivity mostly through a nutrition-sensitive multisectoral intervention (FAO, 2014a, 2014b). Sustained malnutrition reduction requires a systemic approach, an approach that includes development, contextual approach, and strong local political leadership, just as resilience does (FAO, 2014b). There is thus a need for nutrition-sensitivity to be prioritised by people working in these sectors especially during design. Integrated landscape and approaches can also help build synergies in goals/objectives and policy.

Lastly, economic growth alone lacks the power to reduce malnutrition just as in the case of nutrition-specific interventions. National economic growth has been found to be, at most, weakly related to stunting (Haddad et al, 2002; Headey, 2011; Singh, 2014; Vollmer et al, 2014). Analysing 121 countries, Demographic and Health Surveys (DHS) from 36 countries, Vollmer et al (2014) posit that malnutrition could stem from the unequal distribution of growth income, allocation of resources from rising income, and lack of association between rising income and public services needed for adequate nutrition status.

A better approach would be investments in proven interventions (Singh, 2014). This does not undermine the importance of national economic growth, given that no country has reduced malnutrition by any margin without some economic growth or improvement (Headey, 2011). Growth often transmits through sectors such as increased food availability, poverty reduction, female education, improved access to health, and improved family planning. Adequate reductions in malnutrition will only be promoted by both economic growth and direct investments (Haddad et al, 2002). This is evidenced by analysis and simulation done using panel data from North-western Tanzania, where both income and nutrition interventions played a role in malnutrition reduction (Alderman, Hoogeveen & Rossi, 2006). It thus appears that nutrition-sensitive interventions are the linkage between nutrition specific intervention and economic growth on the pathway to adequate nutrition. Given the theoretical hypothesis on possible effects, demand for evidence is higher now than ever before, for the linkage between these UNICEF casual levels. The interest is on how best these sectors can be utilised to maximise nutritional outcomes in women and children. The widely held belief is that these sectors contribute to nutritional status and that belief layers the efforts to make them nutrition-sensitive.

The sections below explore the different linkages between nutrition and the different sectors. Each sectoral linkage begins with a critical concept in the linkages, critical pathways, evidence that substantiate the pathways, their implications and, where possible, which pathway/s are most active, as well as remaining research gaps.

2.7 Theories linking agricultural programmes to nutritional status and nutritional outcomes

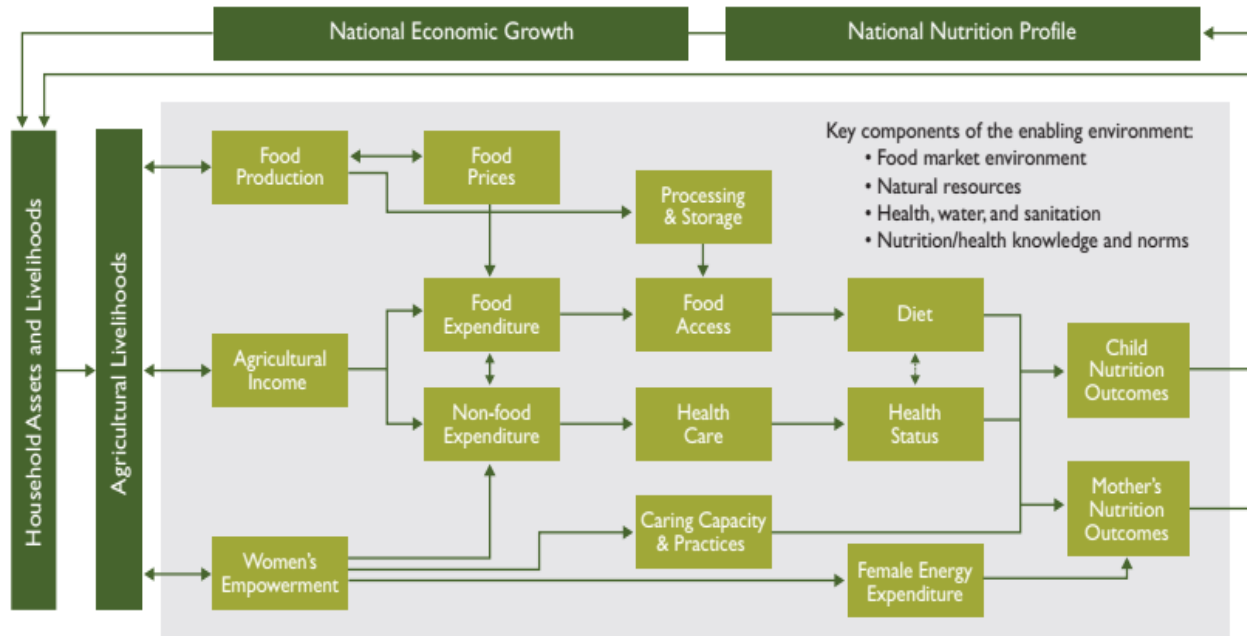
Agriculture stands out as one of the nutrition-sensitive sectors which impact or potential impact has been well-explored. Research in these areas covers a longer period than that exists in other fields and sectors, including systematic reviews and randomised control trials (RCT). This could mean that the agricultural sector has the highest potential to affect nutrition, or stem from the fact that food security has long been attached to nutrition security and only recently begun to be distinguished. It is estimated that a 1 percent increase in crop productivity can reduce the number of poor people by 0.72 percent in Africa (Thirtle, Lin & Piesse, 2003). Another reason for the focus on agriculture could be because many households in emerging economies depend directly on agriculture for food intake (Davis, Di Giuseppe & Zezza, 2017).

The impact of agriculture and the role of the sector on nutrition-sensitivity has been one of the most researched, judged by the number of systematic reviews (Leroy & Frongillo, 2007; Girard et al, 2012; Masset et al, 2012; Fiorella et al, 2016; Pandey, Mahendra Dev & Jayachandran, 2016; Ruel, Quisumbing & Balagamwala, 2018). Its impact on nutrition has only begun to emerge following the introduction of rigorous methodology such as quasi-experimental methods and RCTs (Ruel, Quisumbing & Balagamwala, 2018). Agriculture contributes to child nutrition through the adequate dietary intake (Headey, 2011) and income through food production (Christiansen et al, 2011).

Different pathways have been conceptualised for studying the agriculture-nutrition association. Turner et al (2013) used food value chain, food environment and economic outcome pathways to study the gaps in the agriculture-nutrition landscape. Herforth and Harris, (2014b) proposed three pathways, as shown in Figure 2.3: income, women empowerment, and own food production. Increased income of farmers plays a role in nutritional status through dietary diversity or increased calorie intake from markets and the ability to access health services and other health prevention services (Herforth & Harris, 2014). Other researchers have added food prices to the above pathways (Carletto et al, 2015). In this literature review, the focus is on the linkages and pathways that operate at household and individual levels. By so doing, the effect and possible interactions that food prices have on nutritional status is eliminated. This is supported by the fact that interventions to fix or moderate food prices would stem from business-government interactions, among others (Headey & Fan, 2008). In a way, food prices are out of the reach of immediate household interventions that can be delivered by a given programme, given the number of policies (subsidies and trade inclusive) needed to effectively control food prices in the market (FAO et al, 2011). For instance, in Nigeria, the Agricultural Transformation Agenda led by the then Minister of Agriculture which began in 2011 led to the stabilisation of food prices, increase in domestic food production, and reduction in food importation (Olomola, 2015).

Aside from food prices, own food production, gender-related factors, and income from production encompasses all the other theories and pathways hypothesised by researchers in the last few years (Herforth & Harris, 2014). The sections below critically explore the different pathways through which agriculture influences nutrition.

Figure 2.3: Conceptual pathways of agriculture to nutrition, Source: Herforth and Harris (2014)



2.7.1 Income

The impact of household income arises from the purchase and accruing from In farming

increase in farming income occurs through different mechanisms such as farmer field school (Waddington et al, 2014), improved farming technique, improved seedling emergence (Awotide et al, 2011), and development of crop value chain, among others. Older studies, research, and interventions such as the green revolution (Evenson & Gollin, 2003) previously framed agricultural intervention in the light of increased yield and thus increased income for farmers. This resulted in substantial loss of crop diversity and multi-cropping systems to a focus on cash crops and staples. The dangers of this view were the delineation of agriculture from its linkage to nutrition. Indeed, that view might have stemmed from the separation of the concept of food security from nutrition security where interventions on the food and agricultural divide perceived its input as mostly making food available and accessible. The later merger of the concept of food security to food and nutrition security (Gross et al, 2014) and the current clamour for nutrition-sensitive agriculture has begun to close the divide.

pathways of agriculture
Herforth and Harris

income on
nutrition mostly
increased food
market access
farming activities.
households,

Looking deeply at the impact of agricultural income and nutrition shows a nonlinear relationship and complex interactions (Kadiyala, 2012; Kirk, Kilic & Carletto, 2017). It appears that household income has little scope to improve child nutritional status but also heavily depends on household care, which depends on other welfare dimensions. Alderman, Hoogeveen and Rossi (2006) explored the question of income growth's responsibility in malnutrition reduction using household survey data from 12 countries and concluded that in addition to income growth (which contributed to malnutrition reduction), effective nutrition intervention is also needed. This further deepens the conversation. Headey (2011) asserts that in some countries where aggregate growth has occurred, child malnutrition has not reduced, alluding to the thoughts that sources of income might matter. Headey (2011) further asserts that agricultural growth, which is more pro-poor, often has a more significant impact on malnutrition than non-agricultural growth, though this depends on several factors. These include the size of the agricultural sector, the extent of food insecurity, and the extent to which agricultural growth delivers food availability. In confirmation of the above, another study found that the most effective growth for reducing poverty among the poorest poor was agricultural growth (Christiaensen, Demery & Kuhl, 2011). However, the question is: if poor households' incomes changes, does it change the nutritional profile of household members, especially children under five?

Nevertheless, if household income or agricultural income has a linkage to nutrition, what are the mediators along the pathway? Three possible explanations exist for the link between agricultural income, markets and nutrition, what the funds are spent on, and gender factors.

The relationships between nutrition and markets are most visible among smallholder farmers who depend on rain and who have poor storage facilities. The adequacies or inadequacies of markets come into effect mostly during lean season for these farmers (Abay & Hirvonen, 2016). Market access affects consumption patterns as well as the diversity of consumption during a food cycle. Using survey data from Mozambique, households with more market access, measured by distance to the nearest road, displayed less fluctuation in staple (maize) food consumption than households without access (Handa & Mlay, 2006). In a similar study, analysis of cross-sectional data from 408 households in Malawi, showed that access to a market was correlated with household, child, and maternal dietary diversity (Koppmair, Kassie & Qaim, 2017).

Further analysis showed that market participation had a role to play. The share of maize and other crops sold was positively correlated with household and individual dietary diversity, with marginal effects suggesting a 10 percent point increase in the share of maize being correlated with a 0.14 higher household

dietary diversity score (Koppmair, Kassie & Qaim, 2017). Panel data from northern Ethiopia also showed that though market access encourages the consumption of diverse diets, it does not protect them from the shocks of lean season and thus they still encounter seasonal weight fluctuations (Abay & Hirvonen, 2016). Luna-González and Sørensen (2018) found that the opposite exists in rural Guatemala where access to a market reduces dietary diversity thus, closeness to market protects the farmers during lean seasons.

2.7.2 Own food production

The second pathway in Figure 2.3 is that of own food production influencing household food consumption through food storage and access. Some analyses have found that greater dietary diversity is associated with production diversity. Pellegrini and Tasciotti (2014) used household survey data to estimate the effects of crop diversification on dietary diversity using descriptive and regression results and found a positive correlation between some crops cultivated, dietary diversity and household income. Applying fixed effects to three waves of panel LSMS-ISA data for Uganda, a positive relationship existed between production diversity and nutrition diversity. While other factors that played a role included households' total land area, the proportion of foods consumed from own production, education level of household head and size of household (Linderhof et al, 2016).

Similarly, several other studies have linked production diversity to improved nutritional outcome using various measurements. In an investigation of production diversity and nutritional outcome, an association between livestock ownership and child nutrition status has been found (Azzarri et al, 2015). A strong positive association between production diversity, dietary diversity for children 6 to 23 months, and a significant association between production diversity and stunting among children 24 to 59 months (Kumar, Harris & Rawat, 2015) has been also reported. In addition, a definite link between child nutrition and agricultural production (that is independent of socioeconomic status) (Slavchevska, 2015), has also been reported. Thus, production diversity does have a valid relationship with dietary diversity, though this can be affected by other co-mediators.

Between production diversity and agricultural income interventions, tension exist in which pathways provide a more robust influence on nutrition at household level. A comparison between it is quite difficult, given the lack of consensus indicators in market access studies (Ruel, Quisumbing & Balagamwala, 2018). Using exogenous variation in degree days, rainfall and agricultural capital shocks and instruments, the effect of production on Household Dietary

Diversity Score (HDDS) were estimated. The results showed that production diversity was insufficient to improve dietary diversity. A 10 percent increase in agricultural revenue make households 7.2 percent, 3.5 percent and 5.2 percent more likely to consume vegetables, fish, and tuber, respectively (Dillon, Mcgee & Oseni, 2014). While this correlation does not prove efficacy, nor is it waterproof, it also highlights the importance of access to markets.

In a multi-country survey data analysis, Sibhatu and Qaim (2016) found a positive association between some crop and livestock species produced with household dietary diversity; as did Jones, Shrinivas and Bezner-Kerr (2014). This effect was small, an effect which gets smaller when production diversity scores (which measures the different groups produced) is used. Sibhatu and Qaim (2016) also showed that own production accounts for only 30 percent of the different food groups consumed in the household, with the rest being obtained from the market. The same authors conclude in a meta-analysis of 45 original studies for 26 countries that average marginal effect of production diversity (0.062) is small, implying that for farms to increase dietary diversity production diversity would need to increase by 16 crops or livestock species (Sibhatu & Qaim, 2018). The authors are critical of the tendency to attach dietary diversity to production diversity alone. The tension between own food production and market access needs to be examined further. It might be that for one context own food production will make an excellent intervention and for others, it would be market access. This would only be determined by pre-intervention data collection. Some differentiating factors would include proximity to market (Sibhatu & Qaim, 2018). Perhaps the solution would lie in employing behavioural communication change (BCC) in existing market interventions to ensure that dietary diversity is promoted with agricultural extension agents greatly involved. Another possible option would be to focus on sustainable food system markets and value chains, rather than the development of single crop value chain which is currently the norm. Even so, continued promotion or interventions in staple crops alone are likely to have dire consequence, even for market food diversity. It is becoming clear that despite the intervention, no single intervention either market based, income-focused, or production diversity focused will always provide all the answers. The onus is determining which intervention delivers more impact in each community or region.

2.7.3 Forests and nutrition

An overlooked concept that falls into the own food production pathway is the role of forests. Agroforestry's role in food and nutritional security occurs through food provision, raising farmers' incomes, and utilisation as fuel for cooking, among others (Dawson et al, 2013). Forests and wild diversity contribute

to nutrition in many ways. Its contribution to immediate communities can be highlighted in four points. Firstly, it contributes to dietary diversity through local diets in addition to the social and cultural values attached to it. Africa has about 54 percent forest trees that can be used as human food (Dawson et al, 2013). In the East Usambara mountains of Tanzania 92 wild food species were identified, and its consumption increased during the food insecure season (Powell, Maundu, et al, 2013). An analysis of DHS datasets of 21 countries in Africa, merged with tree cover data, has shown the presence of a positive correlation between tree cover and dietary diversity, a U-relationship between tree cover and fruits and vegetable consumption, and no relationship between tree cover and animal source food (Ickowitz et al, 2014). This finding is exciting and perhaps further analysis needs to be replicated at country level to determine what exact factors influence tree cover in the different regions. This will play a role in making landscapes a part of the communities' nutritional resilience strategies (Powell, Ickowitz et al, 2013). In South East Nigeria about 220 food species and varieties have been documented (Okeke et al, 2009). Wild foods consumed in Nigeria contained micronutrients such as zinc, calcium, iron, and copper among others, though the nutritional content was higher during the dry season than the wet season (Lockett & Christopher, 2000).

Animal source foods contain important micronutrients for the population, especially young children. In significantly sized forests, the forests serve as a source of animal food. Basins contribute animal source food to the population closest to them. For instance, the Congo and Amazon basin had about 1.3 and 4.6 million bushmeat and wildlife extraction respectively in 2010 (Nasi, Taber & Van Vliet, 2011). In mangrove ecosystems where wild fish is consumed, it provides a vital source of animal protein, accounting for as much as 70 percent in the Brazilian Amazon (Rio negro) (Da Silva & Begossi, 2009).

Lastly, forests serve as safety nets cushioning the effect of low yield, high food prices, and other economic shocks. Famines and wet season are the most unsure times for vulnerable populations. Wild foods aid in food provision during famine or provide income through the sale of wild food. Forest foods and trees on farms contribute to 6 percent of the total annual gross income for all rural households studied in 5 countries – Ethiopia, Malawi, Nigeria, Tanzania and Uganda (Miller, Muñoz-Mora & Christiaensen, 2017). In Tanzania's East Usambara mountains, wild foods were consumed more during the wet season (Powell, Maundu et al, 2013). In South East Niger, edible wild plants were found predominantly in food both during drought and adequate rainfall seasons (Humphry et al, 1993).

This review is not exhaustive of the role forests play but only an indication of its numerous potentials. Its role in agriculture-nutrition linkages and sustainable diets/food systems must not be overlooked.

2.7.4 Gender-related factors or overall women empowerment

Gender's link with nutrition, like all other pathways above, is complex. Its influence mainly begins with decisions on what investments are made in agriculture and how the proceeds are spent (Convention on Biological Diversity, 2008). Gender roles also influence vulnerability concerning agrobiodiversity (FAO, 2013). Gender factors and overall women empowerment are essential, given the significant roles women perform in agricultural households beginning with farming, housework, and other responsibilities such as trading.

Access to markets or credit infrastructures is another factor that inhibits or promotes women's participation in agriculture (Ogunlela & Mukhtar, 2009; Fletschner, Kenney & Org, 2010), with an onward effect on dietary diversity and/or nutritional status. The commercialisation of agricultural practices with modern techniques and the utilisation of high information systems often bypass women in agriculture. Improving rural women's productive capacity begins with direct access to credit unmediated through their husbands (Ogunlela & Mukhtar, 2009). Such investments also lead to positive implications for children's nutrition and education (Lépine & Strobl, 2013).

Gender norms have a role to play in changing dietary patterns. The role of women reported in LMIC includes tasks such as cooking, preparing meals, and the gathering and preparation of wild plants and forest foods (Howard, 2003). In some cases, increased maternal workload leads to less time for food preparation and thus changes in diet (Chaturvedi et al, 2016). These changes and effects are not constant and has been shown to vary according to economic status and context (Pierre-Louis et al, 2007). In other cases, it does increase dietary diversity and these effects are felt mostly in poor households (Komatsu, Malapit & Theis, 2015).

Production, leadership, income, resources, and time have been used as different domains to compose the Women Empowerment in Agriculture Index (WEAI) (Malapit et al, 2015). Perhaps the best understanding of WEAI's impact on nutrition comes from the understanding that different domains of gender have

varying effects on the various indices of malnutrition. Malapit and Quisumbing (2015) used four WEAI indicators – empowerment score, average number of a credit decision, the total number of agricultural decisions, and gender parity gap to assess the impact of gender on nutrition. None of the indicators appeared important for boys’ diet quality while credit decision-making was associated with high dietary diversity and chances of minimum acceptable diet in girls. However, girls in households where the main female was empowered in agriculture were less likely to consume a diversified diet. None of the indicators were significantly correlated with boys’ nutritional status but the narrowing gender parity gap favoured boys’ stunting (Malapit & Quisumbing, 2015).

Intra-household dynamics related to gender also played a role (Johnston et al, 2015; Jung et al, 2017). Agricultural income accruing to different household members is used for different things. For example, substantial evidence shows that agricultural income accruing to women who are linked to food preparation, was more likely to be spent on diet quality, than income accruing to men (Quisumbing et al, 1995). This has substantial implications for agricultural interventions/programmes and the composition of their beneficiaries as equal opportunity for women implies added income for the women, which trickles down to the household food quality, dietary diversity and nutritional status.

2.7.5 Agricultural – nutrition links in a nutshell

The three central pathways (income, own production, and gender) have been summarised succinctly. Another aspect of the classification of agricultural interventions though would be by the specific intervention implemented, which could be livestock, aquaculture, and value chain development among others. Whatever the intervention pathway, targeting farmers would feed into either of the three outcomes of income, own food production, and gender. The input, its mediating pathways and output are valid pathways leading to nutritional security, and in most circumstances these pathways are not linear and interact closely with one another. Effects of agriculture on nutrition at household level would stem from a combination of pathways and factors as discussed above. Considering this, policies and programmes must take cognisance of the pathways through which they can impact nutrition. Acknowledging these effects and pathways would ensure that they factor in extra strategies to ensure that the programmes and policies deliver nutrition outcomes.

Furthermore, agricultural income interventions might need to find a way to be genuinely multisectoral, aligning with improved nutrition services, WASH and health services for adequate nutritional status. In a way, agriculture interventions need to change from currently focusing on supply-side production to an adequate understanding of consumption and the factors that can address dietary quality (McDermott et al, 2015).

2.7.6 Effects of the agricultural programme on nutritional status

Turning now from the description of the theory to the strength of effects – what has been observed? Given the numerous studies conducted in the field, the review focuses on systematic reviews published from 2010 to June 2018, as shown in Table 2.1. The summary shows the nutrition outcome, indicators, findings and conclusions.

Table 2.1: Summary of linkages on agriculture-nutrition systematic reviews

Author, year	Evaluation design	Outcomes measured	Findings	Conclusion	Gaps
Girard et al (2012)	Systematic review. 36 articles. 27 unique projects.	Stunting, Underweight. Wasting. Vitamin A status. Anaemia. Morbidity.	Inconsistent findings on the effect on Vitamins A status, anaemia and morbidity. Summary estimates for effects on stunting, wasting and underweight were not significant.	Food production strategies were promising but the evidence base was lacking.	Methodological rigour and assessment of nutritional status. Research in urban areas. Complementary strategies that wade against obesity transition.
Pandey, Mahendra Dev and Jayachandran (2016)	Systematic review. 25 studies.	Dietary diversity, calorie intake, nutrient intake, Anthropometry. DALYs.	The production of nutrient-dense crops, homestead gardens, and diversification of the agricultural production system to include fruits and vegetables and aquaculture can potentially improve nutrient intake and nutritional outcomes.	Agricultural interventions possess the potential to improve nutritional outcomes in South Asia; but current evidence on linkage and its impact are small.	Lack of adequate interpretations on the linkages between agriculture, intermediate outcomes, and nutritional status.
Fiorella et al (2016)	Systematic review. 42 studies.	Household livelihood. Food consumption.	Diversification and Substitution interventions Focused mainly on women, with Enhancement and Diversification interventions providing the highest degree of nutrition counselling and, often, nutrition sensitivity. Enhancement interventions focused on improved consumption.	Applying these typologies allow for a nuanced view and clear understanding of impacts	More varied substitution interventions have been evaluated for its nutrition outcomes.

			<p>Diversification interventions have more several outcome measures including production, consumption, and income.</p> <p>Increased income was a primary outcome measure for the substitution interventions usually merged with child nutrition indicators</p>		
Masset et al (2012)	<p>Systematic review.</p> <p>Meta-analysis.</p> <p>23 studies.</p>	<p>Programme participation.</p> <p>Income.</p> <p>Dietary diversity.</p> <p>Vitamin A status.</p>	<p>No report was made by studies on programme participation.</p> <p>Interventions had a positive effect on the production of agricultural food promoted.</p> <p>No effect on household's total income.</p> <p>Increased consumption of protein and micronutrient-rich foods.</p> <p>Positive effect on vitamin A absorption.</p>	Inconclusive given the poor design of the studies.	Rigorous and methodologically strong studies needed.
Ruel, Quisumbing and Balagamwala (2018)	<p>Systematic review.</p> <p>44 Studies.</p>	<p>Anthropometry.</p> <p>Infant and Young Child Feeding.</p> <p>Anaemia.</p> <p>Dietary Diversity.</p> <p>Macronutrient intake.</p> <p>Micronutrient intake/status.</p>	<p>The various programmes had impacts on Household Dietary Diversity Score, Children Individual Dietary Diversity Score and consumption of animal source food, fruits and vegetables.</p> <p>Observational studies - production diversity and livestock ownership were consistently</p>	Quality of studies has increased.	<p>Long-term impact and sustainability.</p> <p>Scale up operations.</p> <p>Cost and cost-effectiveness.</p> <p>The target group for nutrition outcomes.</p>

			associated with household and dietary diversity and, when measured, with increased intake of essential micronutrients.		<p>Delivery platform for nutrition interventions in agricultural programmes.</p> <p>Context, food environment and gender.</p> <p>Role of markets.</p>
Leroy and Frongillo (2007)	Systematic review. 14 studies.	<p>Nutritional status.</p> <p>Production.</p> <p>Household income.</p> <p>Household expenditure.</p> <p>Caregiver income.</p> <p>Caregiver time.</p> <p>Caregiver workload.</p> <p>Zoonosis.</p> <p>Dietary intake.</p>	<p>Positive impact on dietary intake,</p> <p>Positive effect on nutritional status.</p>	<p>Inconclusive evidence.</p> <p>Mechanism of effect whether increased production or increased income unclear.</p>	<p>Most effective pathway for nutritional status – increased income or increased production.</p> <p>Impact of caregivers’ time and workload.</p> <p>Impact of animal husbandry on zoonotic infections.</p> <p>The trade-off between the health benefit of micronutrients from animal products and chronic disease.</p>

Most of the systematic reviews between 2012 to 2016 had concluded that despite theoretical linkages, lack of methodological rigour led to inadequate inferences. The gaps that existed initially, in the validity and reliability of outcomes and findings, are slowly being filled with strictly designed studies. The most recent systematic review by Ruel, Quisumbing and Balagamwala (2018) asserts that the gap in methodological rigour is gradually being filled. In their review of 44 studies, they agree that the quality of studies has increased with various agricultural programmes showing impact on household dietary diversity, children's dietary diversity, and the consumption of animal source protein. Regardless of the call of agricultural interventions to be nutrition-sensitive, disciplinary restrictions, multifactorial effects, and time hinders the possible effects on nutritional status, and thus it might be prudent for agricultural interventions to limit outcomes to diet quality and diet consumption (Herforth & Ballard, 2016).

2.8 Education

It has been established historically that education does impact nutrition. The linkages between education and nutrition can best be treated under two headings: parental education and early childhood development education.

2.8.1 Parental education and nutrition

The effect of parental education on the nutritional status of their children has been studied and understood as a phenomenon in nutrition. In Nigeria, children's nutritional status reduces as the mother's education increases, moderate stunting prevalence is 49.7 percent, 33.1 percent, 22.6 percent, and 13.3 percent for no education, primary education, secondary education and more than secondary education respectively (NPC & ICF, 2014). Early modelling of the direct and indirect effect of education on Brazilian children found that parents' education had both direct and indirect effects through wages and income (Kassouf & Senauer, 1996). In the same study, primary education of 4 to 8 years was the only significant immediate effect relative to no education, while the most indirect impact through wages and full income stemmed from higher levels of education. These effects were further emphasised by additional findings. For instance, 25 percent of pre-school children whose mother had less than four years of primary education were severely/moderately stunted, primary education of at least four years would reduce this to 15 percent, and further schooling of 11 percent would reduce this to only 3 percent (Kassouf & Senauer, 1996). Simulation findings also show that universal primary school would only cut about 2.5 percent from current stunting prevalence, while

middle school will decrease stunting by 6 percent and upper secondary school by 10.3 percent (Alderman & Headey, 2017). While mother's education appears to have a consensus agreement on impact, some scholars proffer that paternal education may have a similar impact (Vollmer et al, 2017).

To distinguish between the maternal and paternal education effects, econometric analysis of 376,992 children from 56 developing countries were modelled and explored potential explanations of education-nutrition linkages (Alderman & Headey, 2017). The results suggest that maternal education has a more significant impact than paternal education with increasing returns as they go higher (Alderman & Headey, 2017). That said, while these educational investments are made concerning the impact on income and access to health service and knowledge, another pathway that needs to be assessed is the attainment of nutritional education for the adolescent while in school (Glewwe, 1999).

2.8.2 Early childhood education and nutrition

The early childhood education has been gaining traction as a potential for nutrition intervention. *The Lancet* published the first series on early childhood development in developing countries in 2007, followed by another in 2011, and most recently in 2016 (Engle et al, 2007, 2011; Grantham-McGregor et al, 2007; Walker et al, 2007, 2011; Aboud & Yousafzai, 2015; Britto et al, 2016; Richter et al, 2016; Black et al, 2017). This attention, in addition to the SDGs (UNDP, 2015), which explicitly also acknowledged the role that early childhood must play in development has increased the momentum on ECD. This increased momentum can be seen in increased published articles and research on early childhood development, most of which adopted multisectoral approaches (Denboba et al, 2014). It has been understood and agreed that the functioning, architecture and development potential of an individual's brain is laid down in the first few years of life and this process is susceptible to external influence (Walker et al, 2011), now termed first 1000 days. The first 1000 days of life refers to the period from conception to a child's second birthday. It has been found as a period of unique opportunity for neurodevelopment, health, and growth.

An intervention study in Guatemala found that the impact of a high protein/energy supplement was highest for children during the first two/three years of their lives. Low dose of iron and zinc had positive effects on children's iron and zinc status (Petry et al, 2016). Child cohorts have been used to estimate that childhood undernutrition might be linked with a foetal period (Christian et al, 2013). Growth faltering during these first days has implications also for obesity (Martorell et al, 2010; Blake-Lamb et al, 2016; Woo Baidal et al, 2016), influences can also be positive and enhance brain development or negative and hinder adequate brain development (Cusick & Georgieff, 2016). It is in these early years that executive function, cognitive, and social skills amongst others, are built. Skills at

this tender age have been found to correlate with lifelong achievements, such as increased income, school success, and community development among others (Alderman et al, 2014; Yoshikawa & Kabay, 2014; Hurley, Yousafzai & Lopez-Boo, 2016). There are external influences on the horizon of the care sphere in the UNICEF conceptual framework (UNICEF, 1990). It is in this care sphere that other nutrition sensitive initiatives such as social protection, health, nutrition, agriculture, and education converge, and of course this can be driven by early childhood development education.

Nevertheless, assessing advances in basic and intervention science concerning care in early childhood across five sectors showed that multisectoral intervention packages anchored on nurturing care, taking a life course approach, targeting multiple risks, and building an existing delivery platform for feasible scale up is advocated (Britto et al, 2016). Analysis of intervention effects shows promises for integrated and expanded interventions such as the inclusion of conditional cash transfer and expansion of educational media for children (Engle et al, 2011). Examples of interventions needed to be integrated for optimal ECD is shown in Table 2.3.

Table 2.2 Components of well-integrated early childhood package

Package	Elements	Example
Family support and strengthening package.	Access to quality services.	Antenatal care.
		Immunisation.
		Nutrition.
	Skills building.	Reduced harsh discipline.
		Promotion of stimulation.
Support.	Social protection.	
	Safety networks.	
	Family support policies.	
Multi-generational care package.	Protection of parent's physical and mental wellbeing.	
	Enhanced capacity to provide care to the child.	
Early learning and protection package.	Early learning support.	Enhanced teachers' capacity to provide safe and positive emotional climate.
		Nurturing an environment in early childhood centres.
		Parenting programmes during pregnancy, after delivery, and throughout early childhood.
	Social protection of child.	Mandatory birth registration.
		Job protection and breastfeeding breaks for mothers.
		Tracking of child abuse.
	Training of law enforcement officers regarding children's' needs.	

Source: Adapted from Britto et al. (2016) and World Bank (2013)

In an ideal setting, services that aim to improve childhood development across all sectors need to be jointly implemented for a synergistic effect, but, sectoral division, lack of understanding, non-convergence of vision, and implementation can be hindrances (Garrett, Natalicchio & IFPRI, 2011). WHO champions an approach that includes reproductive, maternal, new-born, child, and adolescent health, nutrition, mental health, injury prevention, environmental health, and social determinants of health (Chan, 2015; Chan et al, 2016). It is in this kind of integration that nutrition plays a role in convergence, by the inclusion of social protection in the position to fight against violence and injury prevention, mental health and substance abuse, health services for optimised maternal wellbeing,

new-borns, child and adolescent health, and agriculture as a contributing sector to social determinants of health (UNICEF, 2012; World Bank, 2013).

Quality is the most obvious factor that differentiates between one ECD programme and another. Quality ECD education improves enrolment into primary schools, parents and caregivers' time use, child development outcomes, child growth and health, and school enrolment of older siblings (Martinez & Naudeau, 2012). Some of the actions needed for equitable access to good quality ECD education includes enacting laws to make ECD compulsory, linking ECD and primary education, affordable ECD to enable access to the poor, shorter ECD programmes that aim mainly in smoothing primary school transition, improved quality and integration of child care with ECD education (UNESCO, 2012). Quality is mostly achieved through design, curriculum, parent's involvement, adequate teacher and caregivers training, quality control, and governance (Engle et al, 2011).

2.8.3 Factors that affect the impact of early childhood development

In addition to quality early development education, there are other factors that can improve the impact of ECD, such as parental support and contextualisation. Using an RCT to evaluate Malawi's government programme on community-based, informal preschools, it was found that integrating parenting support with preschools is more cost-effective for better child outcomes than classroom quality alone (Özler et al. 2018), supporting Britto et al (2016) nuanced conclusion that inclusion of parents, families and caregivers provides maximum potential achievement in children. Building the capacity of parents will further equip the home literacy environment in three aspects of learning: activities, parenting quality, and learning materials (Tamis-lemonda & Rodriguez, 2015). In some other settings, integration with religious belief enhances quality among other things (Mwaura, Sylva & Malmberg, 2008). The final onus is on the government to choose or adapt and implement whichever pathway for achieving early childhood targets, be it new initiatives with ECD goals, or adequate enhancement of current services (Daelmans et al, 2016).

2.8.4 Current situation of early childhood development in Nigeria

In 2013, the World Bank commissioned Systems Approach for Better Education Results (SABER) which assessed ECD in Nigeria using the SABER-ECD framework (see Figure 2.4) (The World Bank, 2013c). The SABER-ECD framework presents three core policy goals that countries should address to ensure that ECD outcomes are optimal. These include establishing an enabling environment, implementing widely, and monitoring and assuring quality (The World Bank, 2013b; Pelletier & Neuman, 2014).

These different cores, in turn, have policy levers through which they are graded. For instance, to establish an enabling environment, a legal framework with inter-sectoral coordination and finance is needed (World Bank, 2013). The scope of programmes, coverage and equity are levers of extensive implementation (World Bank, 2013). Lastly monitoring and assuring quality needs available data, quality standards, and compliance with standards. The policies are classified as latent, emerging, established, and advanced (World Bank, 2013). The SABER-ECD assessment outcome for Nigeria was poor at establishing an enabling environment to achieve policy goals. On the other hand, the country was well-established in terms of legal frameworks, and emerging in coordination, but latent in finance. For wide implementation, the scope of programmes and equity were emerging, while coverage was latent. Lastly, for monitoring and assurance quality data availability and compliance with standards were latent while quality standards were emerging (World Bank, 2013). Policy options and recommendations, included creating innovative mechanisms for birth registration, promotion of adequate health care, strategies to deliver ECD to 0 to 3 years, strengthening budgeting and allocation, improved coordination at service delivery, use of training and promotional materials to support community-based nutrition, access to hard to reach areas, and improved monitoring and evaluation, among others (The World Bank, 2013c).

In comparison to Nigeria, the Malawian ECD policy has been classified as emergent in all three core areas (establishing an enabling environment, implementing widely, and monitoring and assuring quality) (World Bank, 2015). For the enabling environment, the government of Malawi has established policies and laws enacted by the parliament, but they remain unenforced (World Bank, 2015). The Ministry of Gender, Children, Disability and Social Welfare coordinates ECD policy and service delivery among sectors. Services provided through ECD include health, nutrition, education, social protection, early stimulation, and special needs care. These services have grown commendably (World Bank, 2015). While data are collected on ECD health and nutrition indicators, none is collected on demographics. In addition, information on service delivery and monitoring and evaluation are also lacking (World Bank, 2015).

In conclusion, education as a sector presents a two-pronged approach to malnutrition. Parental education has a protective effect against stunting for future generations, a vital tool for preventing malnutrition. ECD presents an opportunity of addressing current malnutrition and equipping the children with skills needed to acquire education and, in turn, protect future generations. Education can break the intergenerational cycle of malnutrition and poverty. The need for education can be aptly summarised as contextual adaptation able to integrate developmental biology, programme implementation and contextual priorities, aided by continuous global, national and local dialogue (Shonkoff, Radner & Foote, 2016).

2.9 WASH

Interventions included under WASH sector are mainly water quantity or water quality (WHO, 2015). Water quantity includes “the provision of facilities and services that increase the amount of water available for drinking, cooking, and maintaining good hygiene practices within households, healthcare facilities or schools, and reduce the time and effort required to collect water” (WHO, 2015 p 4). Water quality includes the “improvement and protection of the microbiological (or chemical) quality of drinking water through water treatment and safe storage or improving existing water sources to protect them from outside contamination” (WHO, 2015 p 4). Most common household treatment methods include ceramic or porous filtration, chemical disinfection, heat including boiling, pasteurisation, and disinfectant (WHO/UNICEF, 2012). WHO also estimates that each person needs 15 to 20L of water per day for consumption, food preparation, cleaning, laundering, and personal hygiene (WHO, 2003).

Sanitation refers to “provision and use of facilities and services that safely dispose of human urine and faeces, thereby preventing contamination of the environment” (WHO, 2015 p 4). The assessments for sanitation from household surveys and demographic health surveys seem to be the least constrained as it only always recognises latrines, the disposal of faeces, without due consideration for disposal of waste and dirt in the environments. General sanitation interventions include planning safe disposal for excreta, sanitation campaign using social mobilisation strategies, small-scale businesses to improve supply chain, leverage financial schemes to provide financing for household improvements, develop communal and institutional sanitation services, and integrate hygiene practices with sanitation facility improvements (WHO, 2015)

Hygiene refers to the “practice of handwashing with soap after defecation and disposal of child faeces, before preparing and handling food, before eating, and, in healthcare facilities, before and after examining patients and conducting medical procedures” (WHO, 2015). Food hygiene and environmental hygiene are also included in the general term hygiene (WHO, 2015). Critical times for handwashing include: before cooking, before eating or feeding a child, after cleaning a child’s bottom, and after defecation (WHO, 2015). Effective handwashing lasts 40 to 60 seconds for water and soap, and 20 to 30 seconds for alcohol-based solutions (WHO, 2009). Handwashing stations at home and schools are also important as it serves as a reminder for handwashing. Strategies to keep food safe include a clean environment for handling food, separating raw and cooked food, cooking food thoroughly, storing food at a safe temperature, and using safe water and fresh food (WHO, 2015). Researchers have only recently begun to focus on environmental hygiene, following the finding of high faecal bacteria in children’s playgrounds and on their hands (Ngure et al, 2013). Environmental

hygiene practices include keeping animals away from food areas and water sources, clearing the compound regularly, controlling disease vectors by covering food, improving drainage and safely disposing of garbage, cleaning key surfaces, and providing safe and regularly clean areas for children's play (WHO, 2015). Population density also plays a role in sanitation and hygiene as it has been found that sanitation indicators, such as open defecation, are more important for health outcomes in high population density (Hathi et al, 2017).

2.9.1 Links between undernutrition and WASH

Evidence shows three central direct pathways through which WASH components, discussed above, can impact malnutrition. It is diarrhoea, intestinal parasites, and environmental enteropathy. Other indirect pathways exist, such as time use in search of water and diversion from child care time (Fenn et al, 2012), the negative impacts of WASH on the psychosocial stress level of women and girls (Sahoo et al, 2015), and reduced cognitive function and performance associated with neglected and tropical diseases infections (WHO, 2005). The focus is on the three central pathways diarrhoea, soil transmitted helminth infections, and environmental enteropathy.

a. Diarrhoea

WASH interventions use diarrhoea as a mediator of malnutrition. Diarrhoea which is caused by the ingestion of contaminated food/drinks and direct person-to-person contact accounts for 11 percent of all child deaths (Liu et al, 2012). This, in addition to the almost 50 percent susceptibility that malnutrition (Horton & Lo, 2013) accedes to child mortality, creates the established malnutrition-infection cycle (Reynaldo, 1980). Figure 2.4 shows the contribution of WASH interventions in reducing morbidity emanating from diarrhoea.

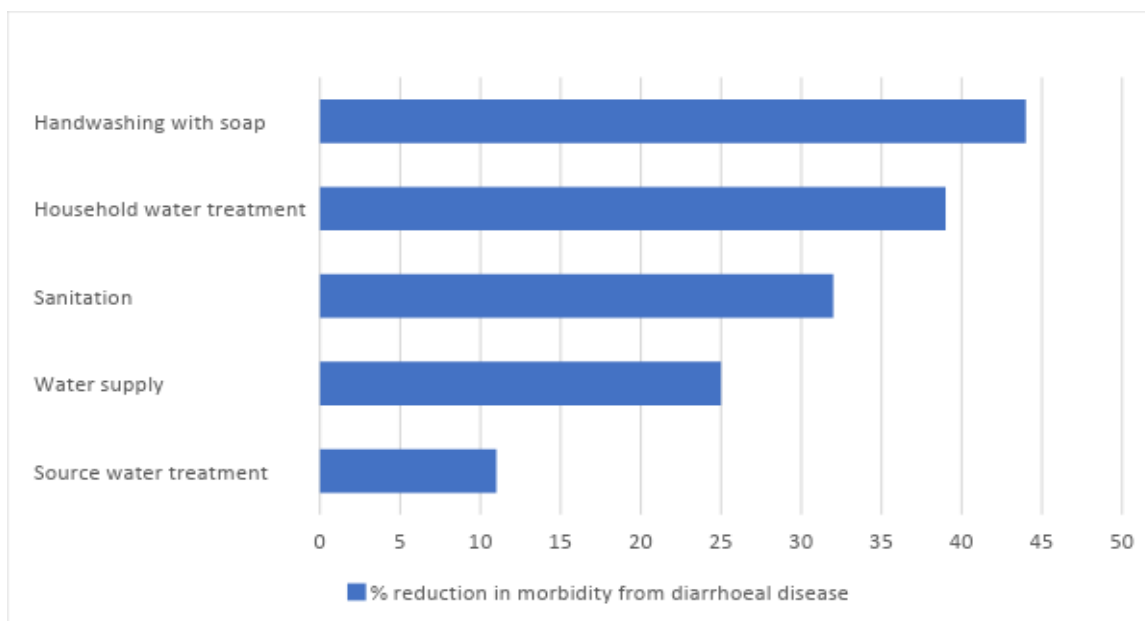


Figure 2.4: Effectiveness of WASH interventions to reduce diarrhoea morbidity, Source: UNICEF (2009).

The vicious cycle between diarrhoea and undernutrition is a classic representation of the undernutrition-infection cycle (Katona & Katona-Apte, 2008). Diarrhoea impairs nutritional status through increased metabolism, malabsorption of nutrients, and loss of appetite (Dewey & Mayers, 2011). Concurrently, a weak immune system that accompanies undernutrition makes children vulnerable to enteric infections, thus also leads to more severe and protracted episodes of diarrhoea (Caulfield et al, 2004).

b. Soil-transmitted helminth infections

Poor sanitation is a significant cause of soil-transmitted helminth infections (Freeman et al, 2017). These infections affect nutrition through blood loss, appetite loss, and malabsorption of nutrients (Katona & Katona-Apte, 2008). Hookworm infections are one of the leading causes of anaemia in vulnerable population such as pregnant women and children. In Africa, one-third of pregnant women have hookworm-related anaemia (Brooker, Hotez & Bundy, 2008). It has been found that a massive infection of whipworm and roundworm leads to growth faltering (O’Lorcain & Holland, 2000).

c. Environmental enteropathy

Between the ages of six months and two years, when children are crawling on the floor, they are susceptible to a high concentration of pathogens from poor sanitation (Ngure et al, 2014). Environmental enteropathy is a chronic intestinal inflammation, including gut damage and leads to recurring infection and poor absorption of nutrients that result from high ingestion of these pathogens (Humphrey, 2009). This environmental enteropathy has the power to cause poor growth and even

influence other nutrition interventions (Humphrey, 2009). Evidence on gut dysfunction and unhygienic experience has been increasing (Mbuya & Humphrey, 2016; Trehan et al, 2016).

Ranking underlying causes of malnutrition for SSA countries, after modelling 1970 to 2012 data, access to sanitation came out on top on interventions that should be given priority in the region (Smith & Haddad, 2015), emphasising the importance of WASH interventions. The WASH sectors have diverse views on the importance of WASH indicators on malnutrition. With systematic reviews on WASH sectors and nutrition indicators reporting varying kinds of interactions ranging from small to borderline (Dangour et al, 2013; Freeman et al, 2017). A recent RCT of WASH and nutrition variables reported that WASH interventions did not affect nutritional status in any form (Luby et al, 2018). Table 2.3 summarises the findings of the systematic reviews of WASH and nutrition.

Table 2.3 Summary of WASH-nutrition systematic reviews

Author, year	Evaluation design	Outcomes measured	Findings	Conclusion	Gaps
Freeman et al (2017)	Meta-analysis of 235 studies using Liverpool Quality Appraisal Tool and GRADE ¹ .	Sanitation exposures – sanitation facilities or exposures, promotion of sanitation, combined interventions. Diarrheal, STH infections, Trachoma, Schistosomiasis, nutritional Status – HAZ ² , WHZ ³ and WAZ ⁴ .	Sanitation is protective against diarrhoea, active trachoma, some STH infections, Christmases and HAZ. Sanitation was borderline associated with HAZ (0.08) with 95 percent (0.00 – 0.16) N = 9. No effect on WAZ and WHZ.	Positive impacts of sanitation on aspects of health.	Sanitation implementations and type of sanitation implementation.
Dangour et al (2013)	Systematic review, 14 studies (5 Randomised Control Trials (RCT) and ten non-RCT). Pooled measures of effects for RCT.	Treatment of household drinking water, provision of soap and promotion of handwashing. Children’s anthropometry, biochemical measures of micronutrient status.	WASH ⁵ interventions had no effect on WAZ and WHZ. WASH interventions had minimal effect on HAZ 0.08 z-score (95 percent: 0.00 – 0.16) among under-five (N = 5). Larger effect on HAZ among under two 0.25 z-score (95 percent: 0.14 – 0.35).	Suggestive evidence on small benefits of WASH interventions on HAZ.	Further studies measuring the impact of WASH interventions on nutritional status outcomes in children are needed. Evidence is lacking on longer-term impact or adherence to WASH interventions.

¹ GRADE - Grading of Recommendations, Assessment, Development, and Evaluation

² HAZ – Height for age Z-score

³ WHZ – Weight for height Z-score

⁴ WAZ = Weight for Age Z-score

⁵ WASH – Water, Sanitation and Hygiene

Besides the above reviewed theoretical pathways of linking WASH and nutrition, other suggestions for connecting WASH and nutrition activities include linkage during the assessment phase, coupling counselling and health promotion activity, during strengthening of overlap community services, linkage at the institutional level, and joint research projects (Concern, 2013). WASH also features and plays a role in all the pillars of food and nutrition security, beginning with water as an agricultural resource involved in food availability, cost of water that displaces income for food access, economic shock of infections related disease affecting food stability, and enteric infections affecting food utilisation (Cumming, Watson & Dangour, 2016). To summarise evidence on WASH-nutrition linkages, plausible paths are minor and exist both through cross-sectional and impact evaluation studies, but it has to be put in context with some of the challenges such as subjective outcomes, logistical problems of randomisation, complicated exposure-outcome relationship, and context (Mills & Cumming, 2016).

2.10 Social Protection

As a nutrition-sensitive potential sector, social protection can address malnutrition at the underlying causes level of the UNICEF framework by reducing poverty, improving household food insecurity or improving quality of care by allowing caregivers more time for adequate caring practices (FAO, 2015a).

Due to the vital role that poverty and vulnerability play in malnutrition, social protection ensures that the poorest people are protected against the shock of life and thus aided in a way that helps them navigate out of malnutrition and break the cycle of generational poverty (DFID et al, 2009; FAO, 2015b). With a role such as this, social protection's definition varies and depends on people's objectives. A better approach would be to forsake the definition and aggregate what can be termed as social protection. Fiszbein et al (2014) estimates that such aggregation and social protection would include:

- (a) social assistance programmes or social safety nets programmes such as cash or kind transfers, labour intensive works and humanitarian aids,
- (b) labour markets interventions such as skills acquisition or job training,
- (c) contributory schemes and social insurance that protect people from health shocks and unemployment.

2.10.1 Effects of cash transfers on nutritional status

In the developing world, the focus is mainly on the social assistance aspect of social protection according to Fiszbein's (2014) definition. This social assistance component can further be explained differently, by form and objective. See Figure 2.5 where the causal malnutrition level that social protection helps to target, and the form of transfer has been used to categorise social protection. Figure 2.5 explains that social protection could be in the form of school meals, benefitting the school children and reducing malnutrition, agricultural subsidies and inputs, or finally as cash transfers. Alternatively, it could be classified on the causal level targeted.

Objective	Form		
	In-kind transfers	Near-cash transfers ^(*)	Cash transfers
Immediate causes	School meals Take-home rations Food transfers Food-for-work ^(**)	Food vouchers	Cash transfers
Underlying causes	Agric input distribution Livestock transfers	Asset/input vouchers	Cash-for-work ^(**) Lump sum grants
Basic causes	[School meals]	Health fee waivers Educational stipends	Cash transfers

Figure 2.5: Various kinds of social assistance, Source: Freeland and Cherrier (2015).

Current evidence suggests that cash and kind social transfers make a significant impact on the poverty for the poorest households in the world. Impacts are mostly felt in nutrition, healthcare access, access to education, income, and assets. These impacts have been documented in almost all continents of the world. Fernald et al (2008) showed that Conditional Cash Transfer (CCT) was associated with better child health, growth, and development outcome in children. Using linear and logistic regression, they estimated the effect size of the Mexican programme *Oportunidades* implemented in 1998. Below, the researchers look at social safety nets in linkages with various nutrition intersecting factors:

a. *Social safety nets and diets*

Three main mediators through which social safety nets can influence diets are through food transfer and asset transfer. The transfer of foods could be in the form of food vouchers, school feeding, and

in-kind transfers. In England, food vouchers provided important nutritional safety nets and had excellent potential of improving the nutritional status of young children and pregnant women in low income areas (McFadden et al, 2014). Specifically, food vouchers could be used to increase fruits, vegetable, and cow milk consumption, or reduce food expenditure ensuring that money is spent on other necessities (Ohly et al, 2017). In a systematic review, Greenhalgh, Kristjansson and Robinson (2007) aggregates 18 studies and submit that the main reason for the success of school feeding include its ability to correct long term nutritional deficiencies, being a short term relief of hunger, making children feel valued, reduced absenteeism, inspiration of improved home diet, and the reduction of intergenerational cycle of poverty. The next mediator is the asset transfer and linkage with diets. Assets transfer especially when given in agricultural programmes have been effective as a means of social assistance and protection. These assets could be in the form of input subsidies (usually seed and fertilizer) or farm equipment. It could also be agricultural insurance that protects income, ensuring that risks are low. A secondary dataset from Malawi, Snapp and Fisher (2015) suggest that agricultural input facilitates crop or dietary diversity through already identified pathways. A correlation between crop diversity and food quality, leading to an indirect impact on commercialisation was seen. These correlations were observed to result in higher income and more diverse food purchases (see Section 2.7 under agriculture for details on agriculture and nutrition linkages).

Each of these forms of social assistance has thus been found to play a role in increasing, diversifying, or stabilising household diets. This can mostly be attributed to the various coping strategies involving food which is minimised in the presence of a social safety net. Despite these impacts, there are evidence to show that improved income does not necessarily translate to improved nutrition (Haddad & Alderman, 1999). Household members need to be empowered to invest or spend in a manner that is nutrition sensitive.

b. Social safety nets and health

The influence of cash transfer and health appears to come from improved healthcare access and sanitation. In some conditional transfers, health habits are usually employed as conditions for assessing grants. Several studies have reported the impact of conditionality on healthcare access. In India, the implementation of Janani Suraksha Yojana, a CCT to incentivise health facility birth was associated with 3.7 and 2.3 perinatal and neonatal deaths per 1000 pregnancies and livebirths respectively (Lim et al, 2010). Likewise in Brazil, *Bosla Familia*, a CCT improved healthcare uptake with additional spill over on older siblings (Shei et al, 2014). Similar findings were also reported in Honduras, where household-level interventions had a large impact of 15 to 20 percent on reported antenatal visits and 15 to 21 percent on growth monitoring (Morris et al, 2004). These findings show a definite linkage between safety nets on health.

c. *Safety nets and income, assets, savings, and investments*

The potential also exists for safety nets to impact income, assets and the like. In a quasi-experimental study in Niger, cash transfer led to investments in assets such as livestock, productive activities, and saving groups (Stoeffler, Mills & Premand, 2016). These impacts were sustained 18 months after the study ended.

d. *Social safety nets and care*

Cash transfer also influences care, which is an important concept in nutrition through mainly maternal protection and women empowerment. Social safety nets can also enable maternal protection, especially during maternity by ensuring maternity leave, reduced workload, and increasing chances of breastfeeding. They also improved women negotiating power and those empower more women. In Pakistan, government's Benazir Income Support programme, an unconditional cash transfer had substantial and positive effects on some women's empowerment variables. Ambler and De Brauw (2017) applied fuzzy regression discontinuity methods on 2011 to 2013 household data to show that the Unconditional Cash Transfer (UCT) resulted in less tolerance to be beaten, visiting friends without permission, and likeliness to vote among, women recipients.

From above, it can be concluded that the multisectoral nature of nutrition provides multiple pathways through which cash and kind transfers lead to good nutrition. Thus, improved access to health care, improved income, and assets would all synergistically lead to better nutritional status of household members. Renzaho et al (2017) evaluated the effectiveness of the synergistic effect of the child-sensitive social protection programme which was embedded within the government's targeted resource transfer for families. They showed that to increase the effectiveness of the interventions on younger children, the cash amount had to be reviewed upwards and closely rooted into the Infant and Young Child Feeding (IYCF) initiatives. Perhaps conditional cash transfers or embedding would increase the effectiveness of cash/kind transfers.

Another important factor when considering a safety net is sustainability. Some kinds of social safety nets given to a subgroup appears to be unsustainable. In some other cases programme might have sustained effects, but not translate to reductions in health status or increase in empowerment (Baird, McIntosh & Özler, 2016).

2.10.2 Labour market interventions and nutrition linkage

In addition to the benefits of cash transfers, labour market interventions are also useful. There are several types of labour market-based interventions, including employment services, entrepreneurship

programmes, training programmes, and wage subsidies. Empirical findings from systematic reviews and meta-analysis of 107 active labour market programmes in 31 LMIC suggest positive effects of skills training and entrepreneurship promotion (Kluve et al, 2017). These effects were more prominent in LMIC and even higher when disadvantaged youth were targeted. This has earnings, employment and human capital implications which might aid nutrition in unemployed youth. The review found that one out of three youth employment programmes had positive impacts on labour market outcomes. Youth employment interventions in high-income countries were insufficient to uplift youths, given the well-educated and labour-intensive demands of the job market. On the other hand, in LMIC average investment in skills resulted in improved labour market outcomes. Another significant finding of the review is the value of timing. Effects increased with time, the more extended the period of measurement, the more likely a positive impact was found. Lastly, the key factors that determine the success of the youth programmes are intensity and scale, especially among disadvantaged youth. Given the ability of youth employment programmes to influence labour market outcomes, income and livelihood, it can be concluded that it also has potential to influence nutrition, especially that of teenage women and the next generation (Kluve et al, 2017). The impact of youth employment programmes have been reported to be greater for females (Card, Kluve & Weber, 2017).

2.10.3 Systematic reviews linking social protection and nutrition

A number of systematic reviews has been carried out to aggregate the social protection-nutrition linkage, see Table 2.4. These reviews are mostly in the sphere of cash transfers. They show that social protection in the form of cash transfers has an impact on different outcomes, nutrition-related outcomes inclusive (Manley, Gitter & Slavchevska, 2013; Bastagli et al, 2016; Hidrobo et al, 2018). In quantifiable numbers, the impact on stunting might be small but heading in the right direction (Manley, Gitter & Slavchevska, 2013).

Lagarde, Haines and Palmer (2007) assessed the effectiveness of conditional monetary transfers in LMIC to improve access and use of health services. Immunisation coverage showed unclear effects, anthropometry outcomes were found in some beneficiary subgroups and other health outcomes also showed mixed effects. They reported methodological gaps that needed to be strengthened by more research. The finding though suggest that conditional cash transfer was an effective approach to scale up access and the use of preventive services in some contexts when obstructive conditions are eliminated. An update to this systematic review was published in 2011, its effectiveness was expanded to the promotion of healthy behaviours, but further highlighted the importance of supply-side factors

in CCT. Furthermore, cost-effectiveness and sustainability are also issues to be considered before a CCT (Ranganathan & Lagarde, 2012).

Table 2.4: Summary of Social protection-nutrition systematic reviews

Author, year	Evaluation design	Outcomes measured	Findings	Conclusion	Gaps
Hidrobo et al (2018)	Meta-analysis, 75 studies analysed.	<p>Food security outcomes:</p> <ul style="list-style-type: none"> - Calorie intake, - Food expenditure, - Dietary diversity, - Food insecurity, - Food share of total consumption, - Protein and micronutrient intake <p>Asset formation:</p> <ul style="list-style-type: none"> - Livestock, - Nonfarm productive assets, - Farm productive, - Land, - Savings. 	<p>Social protection increases food expenditure by 13 percent.</p> <p>Calorie intake increased by 8 percent.</p> <p>Increased livestock.</p> <p>Increased non-farm productive assets.</p> <p>Increased frame productive assets.</p> <p>Increased savings.</p> <p>No impact on land (although studies were limited).</p>	<p>Social protection contributes to the fight against hunger, by improving diet quality through increased animal food intake.</p> <p>They address causes of poverty through their impact on asset holding.</p>	None.
Bastagli et al (2016)	Flexible systematic review, 56 cash transfer programmes, CCT ⁶ – 55 percent.	<p>Monetary poverty.</p> <p>Education.</p> <p>Health and nutrition.</p>	<p>Large evidence base linking cash transfers to a reduction in monetary poverty.</p> <p>Total and food expenditure increase.</p> <p>Reduction in FGT⁸ poverty measures.</p>	<p>Significant impact on first and second outcomes but can also impact outcomes not the immediate focus of the programme.</p>	<p>Rigorous evaluation of cash transfer in Sub-Sahara Africa.</p> <p>Evaluation of enterprise grants and social pensions.</p>

⁶ Conditional cash transfers

⁸ Foster-Greer-Thorbecke

	<p>UCT⁷ – 25 percent, CCT + UCT – 9 percent, Social pension – 7 percent, Enterprise grants – 4 percent.</p>	<p>Savings, investments and production. Employment. Empowerment.</p>	<p>A link between cash transfers receipt and increase school attendance, but less evidence for learning outcomes.</p> <p>Cash transfers improve the use of health services, dietary diversity and anthropometry.</p> <p>Positive impact on savings, livestock ownership and agricultural input.</p> <p>No significant impact on employment.</p> <p>Transfer can reduce physical abuse but may increase non-physical abuse.</p>	<p>Unintended effects include work disincentive effects and increase in fertility in childbearing households.</p>	<p>Greater focus on higher outcomes like child growth, health status, educational performance.</p> <p>Individual and household disagreed analysis.</p>
<p>Manley, Gitter and Slavchevska (2013)</p>	<p>Meta-analysis, 17 programmes</p>	<p>Stunting.</p>	<p>Impact on stunting is small, positive and not statistically significant.</p> <p>Programmes with non-health conditionality have a significant negative impact on stunting.</p> <p>Girls and poorest benefit more.</p>	<p>Targeting the poorest will yield highest margins of impact.</p> <p>Cash and food are not enough in the absence of good health.</p> <p>Conditions may not help if they are not health-related.</p>	<p>None.</p>

⁷ Unconditional cash transfers

<p>Ranganathan and Lagarde (2012)</p>	<p>Systematic review, 13 CCT programmes</p>	<p>Use of preventive services, Access to health care services, Modification of risky sexual behaviours.</p>	<p>CCT significantly improved use of health care services. Major impact on health outcome reported. Possibility of CCT to improve improve sexual behaviours.</p>	<p>CCT addresses issues which poor populations face concerning healthcare access and modification of risky sexual behaviour.</p>	<p>Gaps exist in sustainability and cost-effectiveness.</p>
<p>Lagarde, Haines and Palmer (2007)</p>	<p>Systematic review, 10 articles.</p>	<p>Health access and use such as immunisation coverage, anthropometry and care-seeking behaviour.</p>	<p>Increased in use of health services. Unclear effects on immunisation coverage. Limited positive anthropometric outcome on some beneficiary subgroups. Mixed effects on other health outcomes.</p>	<p>Conditional cash transfer is effective for increased preventive service use.</p>	<p>More research is needed to understand components with the most critical roles.</p>

Given the impact of social protection shown in Table 2.4 above, there are different ways through which nutrition can be integrated into social assistance/transfer programmes. By extension social protection programmes include (1) multisectoral integration of nutrition, gender, food security, and health, (2) the development of social protection framework collaboration with nutrition and health policymakers, (3) aiming to achieve nutrition objectives in social protection programmes through training social protection staff on nutrition practices and developing BCC strategies and Information Education and Communication (IEC) materials, (4) expansion of social protection programmes in areas where nutrition services are hard, and finally (5) the use of nutrition indicators to monitor programme effectiveness (UNICEF & EU, 2016)

2.11 Conclusion of literature review

In conclusion, it has been established that Nigeria's nutrition situation still needs urgent and efficacious interventions to help mitigate the current public health problem. Given the urgency and scale of the problem it is vital that nutrition-sensitive interventions augment nutrition-specific ones.

As one increasingly seek sustainable solutions to reduce the current malnutrition prevalence in the world, and Nigeria, it is important that research explores innovative ways to design realistic solutions for sustainable malnutrition reduction. Well-designed programmes have the capacity of impacting malnutrition. If political commitments and implementation influence malnutrition and are critical for the success of programmes and interventions, research needs to consider these factors to guide programmes, to understand processes and to determine what key components of these domains are needed while considering the local context of nutrition-sensitive programming. The promise of nutrition-sensitive programmes and the benefits it accrue for children, households and families will only be realised when these domains are considered.

Although nutrition-specific interventions certainly influence malnutrition, ultimately in the communities, it rests upon nutrition-sensitive interventions and programmes to sustainably prevent malnutrition. At large, government programmes have the potential to impact malnutrition. This study on developing a roadmap, which will consider these contextual factors, will help to understand strategies that might help nutrition-sensitive mainstreaming. It could also potentially inform the targeting of LGAs in Nigeria, the redesigning of programmes, and future scale-up of nutrition-sensitive programmes.

CHAPTER 3

3 PRAGMATISM AS THE PHILOSOPHICAL FOUNDATION FOR THE MAINSTREAMING NUTRITION INITIATIVE ASSESSMENT APPROACH

Abstract

The aim of this chapter is to critically discuss the use of pragmatic philosophy within the mainstreaming nutrition initiative assessment framework in nutrition research and present the mixed methods design employed in this study using the framework.

The chapter utilises critical inquiry to bring together pragmatic philosophy and mainstreaming nutrition initiative framework approach to advance nutrition.

The chapter draws from the literature on the philosophy of pragmatism and literature on mainstreaming nutrition postulated by Menon and Colleagues (2011). The potentials, tensions and boundaries for underpinning mainstreaming nutrition approach with a pragmatic philosophy are discussed, while discussing the implications this has for creating context-specific solutions aimed at eliminating malnutrition. The chapter further expounds on the methods used in this study.

The implications for how nutrition interventions are designed or redesigned using the mainstreaming nutrition initiative approach rooted in pragmatic philosophy are very important. Creating nutrition interventions that address the complexity of malnutrition are needed. The acknowledgement of the interaction of varying malnutrition profiles, operational differences and political commitment can be employed by researchers and policymakers to create knowledge that is useful and design programmes that are sustainable, respectively.

3.1 Introduction

Nutrition is primarily understood from the UNICEF conceptual framework perspective (UNICEF, 1990). The complex nature of nutrition interventions with the immediate, underlying and basic causal levels of the UNICEF conceptual framework makes evidence-based knowledge vital in designing interventions. Lately, it has become acknowledged that this knowledge and practice need not be differentiated and should be allotted together to enable co-creation of knowledge that is feasible. In this co-creation a manner of finding a research paradigm that fits into both knowledge and practice is the key to success. This co-creation thus becomes important for nutrition interventions with adjoining implications. A *Lancet* series calls for interventions in the different UNICEF casual levels, as each has accompanying importance and a role to play in fighting malnutrition (Bhutta et al 2013; Black et al 2013; Gillespie et al 2013; Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013). Mainstreaming nutrition actions into other sectors is one way in which this can be done.

The mainstreaming nutrition initiative was funded by the World Bank to catalyse positive changes in the design and implementation of nutrition policies and programmes (Pelletier et al, 2012). Mainstreaming nutrition has been defined by Pelletier et al (2011) as moving nutrition into the mainstream of a given country's or region's policies and programmes. This dissertation draws from the mainstreaming nutrition initiative assessment approach.

3.2 Aim of the chapter

The aim of this chapter is two-fold. First, the chapter sets out to critically discuss the use of pragmatic philosophy within the mainstreaming nutrition framework in nutrition research. Second, it presents the mixed methods design employed in this study using the framework.

3.3 Mainstreaming nutrition initiative assessment framework: Methodological characteristics

At the end of the funding period, the mainstreaming nutrition initiative project conceptualised a framework (see Figure 3.1) synonymous to the development approach of Triple-A: Assessment, Analysis, and Action. The proposed framework suggests the consideration of the epidemiological, operational and political realities in a space prior to or during an intervention as these factors (called domain) affect malnutrition and ultimately influence any intervention developed. The Mainstreaming Nutrition Initiative Assessment (MNIA) framework (Menon et al, 2011) offers an approach for the

strategic development of nutrition agendas, including nutrition in existing policies and programmes. The framework proposes that the epidemiology of malnutrition in an area, the operational realities related to programme implementation, and the socio-political will for eliminating malnutrition and ensuring that the programmes implemented are the anchor for ensuring malnutrition is mainstreamed to policies and programmes. This approach introduces vital domains that are important for the success of any nutrition agenda. The framework describes a simple, comprehensive assessment approach to assist in development of sound nutrition strategies, well-grounded operative and appropriate actions for nutrition in each context.

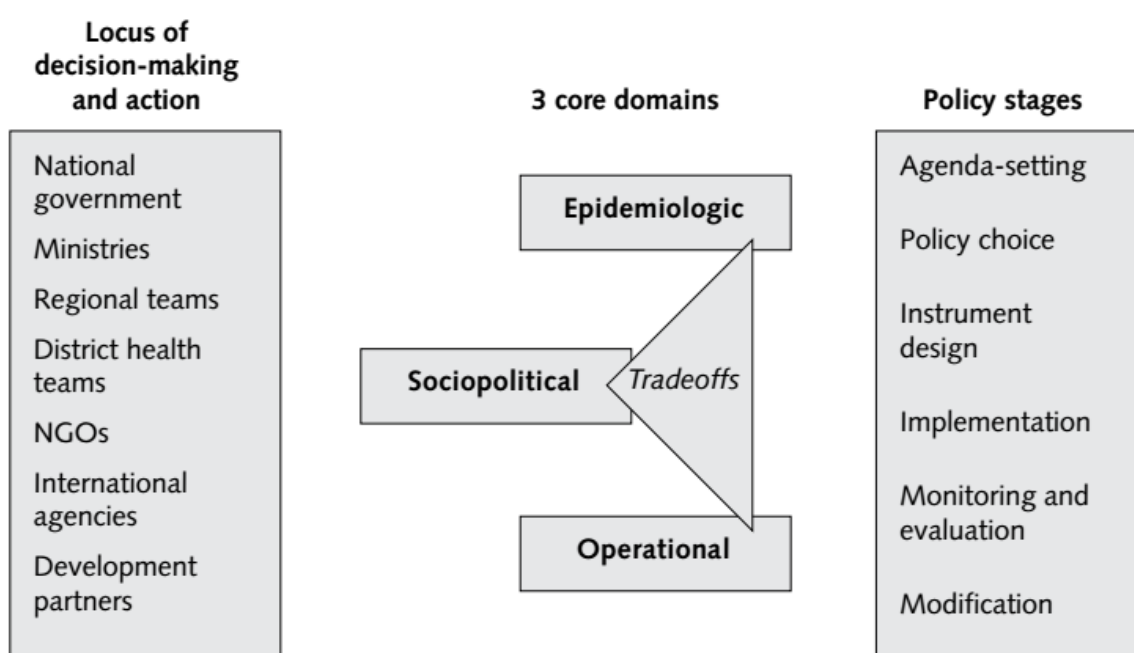


Figure 3.1: Mainstreaming Nutrition Assessment Initiative Framework, Source Menon et al. (2011).

The conceptual framework for this assessment approach incorporates three domains, each essential for defining strategic actions for nutrition:

- a. epidemiological - affecting to the nutritional situation and the evidence about the efficacy and effectiveness of nutrition interventions,
- b. operational - relating to coverage, quality, and utilisation of nutrition-related interventions and programmes as well as capacities, prospects, and constraints to improving these,
- c. socio-political - applies to social, political, cultural, and organisational factors at various levels, which may enhance or inhibit efforts to create positive changes in policies and programmes.

The domains are interlinked, and the socio-political domain often underlies the other two domains. Using this framework would reveal essential insights for the nutrition policy agenda that were previously not considered explicitly in efforts to advance nutrition.

The epidemiological domain focuses on the current nutritional situation of the country, district or unit for which the intervention is to be developed or at which level nutrition needs to be mainstreamed. This extends not only to undernutrition issues but the whole range of malnutrition and at its different prevalence or incidence level. Here, the onus is on access to nutrition indicators and causes using established evidence and pathways. The UNICEF conceptual framework becomes the template for identifying causal factors and linkages (UNICEF, 1990). Other established pathways in nutrition are also critical in the epidemiologic assessment.

The operational domain recognises the importance of implementation in the elimination of malnutrition. Recently, the right attention is being drawn to the importance of implementation in nutrition. Operational assessment in this domain assesses among other things the coverage, quality and utilisation of any nutrition intervention. It focuses on confounding factors that can hinder established or theory-driven interventions from eliminating malnutrition. This has become important given that the same nutrition intervention does not achieve the same malnutrition reduction in different countries or even districts (Engebretsen et al, 2014). The operational domain also focuses on user-end and supplier-end factors that can hinder the uptake of interventions or hinder the uptake of existing interventions. Numerous studies have recently applied an the operational analysis of programmes and activities to enable further understanding, adaptation, and modification of programmes or help in the development of new ones (Kim et al, 2011; Olney, Rawat & Ruel, 2012; Olney et al, 2013; Rawat et al, 2013; Mbuya et al, 2015; Leroy et al, 2016).

The socio-political domain is synonymous with political will. In recognising the importance of political will in the effectiveness of the nutritional intervention, the nutrition world has come to focus on increasing the political will and support for nutrition, especially at the international and country level. This also applies to any nutrition intervention. Thus, the importance of accessing socio-political support for any nutrition intervention cannot be over-emphasised. The assessment at this level includes stakeholder assessment and network mapping of stakeholders, among others. Untangling the political, institutional and policy-related challenges is an imperative factor in mainstreaming nutrition (Acosta et al, 2012). Political “commitment” can be studied using three measurable indicators: the amount of funding committed by the government at state level to the nutrition agenda, the prominence of nutrition in vital state policies and programmes, and the level of co-ordination among various sectors or relevant government’s constituent parts (Reich & Balarajan, 2012; Fox et al, 2014; Gillespie, 2014).

The MNIA framework's usability extends through all stages of policy-making ranging from agenda setting to policy choice to modification, and even evaluation.

3.4 Introduction to pragmatism

The basis of pragmatism is that the value of an idea is found in its practical consequences. Charles Peirce (1877), William James (1909), and John Dewey (1938) the founding fathers of pragmatism all agree and emphasise the practicality and consequence of ideas/statements, despite their various accounts of pragmatism (Cherryholmes, 1992).

For Charles Sanders Peirce, generally acknowledged as the founding father of pragmatism, the scientific foundation of pragmatism is essential. The term "pragmatism" was coined to express means of logic which intent is to analyse concepts with endpoints of "conceivable practical consequences" (Peirce, 1978). Thus, he described pragmatism as a method that utilised scientific logic to clarify the meaning of concepts through investigating its future interaction with the real world (Peirce, 1905). His theory of truth hinges on truth relations and inquiry. Inquiry includes all methods of transforming truth including scientific methods, and the truth relations expounding in the relationship between reality and truth.

William James moves pragmatism away from its scientific foundation to its intents. What pragmatism in this sense focuses on, is the effect of beliefs and action on the people's lives. In addition, William expounded on what could be termed "experiential empiricism" (Fogarty, 2012 p 1), thus one must always ask "*what difference would it practically make to anyone if this notion rather than that notion were true*" (James, 1907 p 18). Instead of an objective truth, James affirms that truth is made by 'us' and reality. The idea is that truth is changeable and multiple truths exist. He argues that ideas and beliefs are only when they help people to get satisfactory relations with other parts of their experiences (James, 1907).

For John Dewey, the leader of instrumentalist school of pragmatism, beliefs are necessary by 'inquiry'. He argues for a role for inquiry in transforming problems or situations rather than having a fixated belief. Dewey gave the following definition of inquiry:

"Inquiry is the controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole" (Dewey, p. 108).

Dewey also emphasised the importance of practical deliberation of theoretical beliefs. Deliberation in practical reason is about what one should do and how one should do it. It co-ordinates means and consequence where the relationship between means and consequence is thoroughly reciprocal (Garrison, 1999).

The three principal founders of pragmatism, despite agreeing on the importance of practicality being the foundation of ideas and truths, lead to different directions when further investigated. This chapter does not dwell on these differences nor claim or assert that the mainstreaming nutrition initiative team ascribes to any of the above schools of thought. What is vital to this chapter is how to explore and discuss how the pragmatic perspective can be a basis for the application of the mainstreaming nutrition initiative framework and utilised in developing contextual solutions for fighting malnutrition.

Words commonly associated with pragmatic approaches include consequences of actions, problem-centred, pluralistic, real-world practice-oriented, and mixed models. The characteristics of pragmatism visible in the framework include the nature of knowledge, knowledge creation, realistic solutions, contextualisation, and implicit vs explicit pragmatism (Morgan, 2014).

3.5 Basic principles of a pragmatic approach

The basic principles of pragmatism and how they apply to the current dissertation are described below:

3.5.1 Knowledge

Pragmatists believe there is a need to stop asking about reality (Cherryholmes, 1992), in the case of nutrition employ the current known causal factors and with that, focus on changing the situation (Rorty, 1983). While all knowledge is important to a pragmatic view, what the pragmatist considers more important is the actual use of the knowledge one has.

a. How was this applied?

Underpinning the mainstreaming nutrition approach with a pragmatic philosophy has significant implications for interventions or policies developed. A pragmatic approach allows for multiple theories, ideas, and perspectives to be considered in the creation of a nutrition intervention or policy. The intervention created or assessed using this approach best expounds on what obtains in practice

in addition to theory-driven interventions and assessments. This thesis focuses on generating applied knowledge.

3.5.2 Knowledge creation

Pragmatists look at “what” and “how”. By doing this, their research is based on their intended consequences. Thus, they establish a purpose before the research itself. Researchers and practitioners have the freedom of choice with respect to methods, techniques, and procedure that best meet their needs and purposes.

All three the pragmatic fathers mostly talk about how to reach the conclusion one has of the knowledge, lending voice to the scientific way through which knowledge should be created. It is important that knowledge is generated in a way devoid of suspicion. The mainstreaming nutrition framework draws up scientific methods through which important solutions for each specific malnutrition problem should be decided. Knowledge of the nutritional epidemiology alone does not suffice in deciding which intervention to implement. They give examples of structured methods through which both the policy economy and operational arms can be assessed, and the resulting information used in programme and/or policy development (Menon *et al.*, 2011).

a. How was this applied?

One of the most significant impacts is the inclusion of operational and socio-political knowledge. Bringing together implementation science and policy analysis whilst looking at theory-driven intervention, programmes and policies are at best pragmatic. Acknowledgement in the inseparability of implementation and political will result in the success of malnutrition interventions and policies. The mainstreaming nutrition approach attaches importance to the means through which knowledge is created. In the development of the roadmap, the author applies pragmatic flexibility in the choice of methods, techniques and procedures.

3.5.3 What works

A pragmatic approach believes in “*Truth is what works at a given time*”, creating a real-world practice-oriented approach (Creswell, 2013; Babbie, 2015). There is no strict duality between the mind and reality, but completely depends on the mind. The sheer aim of the pragmatic belief is deducing what works. The MNIA framework applies this implicitly through acknowledging that operations of a given programme and policy might hinder its success. Thus, it becomes imperative that from established

solutions, due diligence must be made to seek out programmes/policies that are operationally feasible. The same applies to the political economy.

a. How was this applied?

This chapter argues that the MNIA framework approach promotes contextualisation and is integral in developing context-specific solutions, programmes, and policies. The implications for interventions developed using a mainstreaming nutrition initiative approach underpinned in the pragmatic approach are important. Developing solutions that address the complex problems posed by not just malnutrition itself, but the unique operational and political situations are important and might be the only way out of the malnutrition menace. In this study, integration of the three domains throws more light on feasible solutions while noting tensions that are likely to occur.

3.5.4 Contextualisation

The Oxford dictionary defines contextualise as “to place or study in context” (Oxford, 2015). It subsequently defines context as “*The circumstances that form the setting for an event, statement, or idea, and regarding which it can be fully understood*” (Oxford, 2015).

Context could be responsible for the success or failure of similar nutrition interventions in different countries or districts. For the pragmatists, the world is not an absolute unity. The pragmatic research agrees that research and, in this case intervention, occurs in social, historical and political, and other contexts. Programmes and policies do not exist in a continuum and must reflect the realities of the current time and space. This brings in the need to contextualise any given programme to the needs of the people, taking real life factors into consideration.

a. How was this applied?

In reality Pierce, James, Dewey and Mead’s pragmatism refers to contextualisation. Paying attention to a *historical event* can also be interpreted as actions in context.

“The world is seen as an unlimited complex of change and disorder. Out of this total flux we select certain contexts as organizing gestalts or patterns that give meaning and scope to a vast array of details that, without the organizing patterns, would be meaningless or invisible” (Lilienfeld, 1978 p9).

In this study, states in Nigeria are the complex world. They exist with emergent characteristics and a continually dynamic environment that warrants continued contextualisation of solutions to address malnutrition. This study understands this dynamic with special respect to political factors emanating

from continual political changes and implementation factors because of organisation changes. Thus, state roadmaps differ, accounting for these varying difference as assessed by data collected.

The other principle which is deduced from the framework is that of targeting. This is already in application in the nutrition sphere, with the concentration of research and interventions in countries and regions with higher burdens of malnutrition. While this is practised at country level, stepping it down to district level or smaller areas in countries would require data on prevalence at those levels. The effect of applying the mainstreaming framework is a solution where everyone benefits from solving the problem being addressed at this point. This dissertation employs this by comparing two states with very distinct stunting profiles: one with extreme stunting prevalence and another with less severe stunting prevalence.

None of the domains of the mainstreaming nutrition framework is novel. The novelty is in generating solutions through synergies across domains and that would not exist in isolation. That said, the most important implications of the MNIA framework are the concepts of contextualisation and targeting that begins to emanate when the framework is applied. It is reflected in solutions drawn from the framework. The principle that what works in one region or country might not work in another region is important. The developers of the mainstreaming nutrition approach may have knowingly or unknowingly aligned themselves with the pragmatic philosophy.

3.6 Study design

To apply the MNIA framework, this study collected epidemiology, operational and socio-political data in a bid to develop a contextual solution to malnutrition for two states in Nigeria. Figure 3.2 illustrates the design, phases, and data collection of the different domains and the subsequent use of the findings to develop a roadmap.

A convergent parallel mixed methods design was used where quantitative data is collected and analysed, followed by qualitative data collection and analysis. In this study, the epidemiological domain of the MNI framework was quantitatively assessed using Small Area Estimation (SAE) methodology. The qualitative arm explored operational and socio-political contexts, aiming to determine the opportunities and constraints concerning setting nutrition-sensitive agendas. The reason for collecting both quantitative and qualitative data was

1. To ensure malnutrition hot-spots are discovered using the quantitative data,
2. To ensure that operational and socio-political challenges/opportunities are further explored during qualitative data to enable the realistic development of a roadmap for mainstreaming nutrition.

The current study thus assumes that obtaining scientific and systematic evidence on the need for context-specific nutrition-sensitive actions will convince decision makers to modify existing programmes to target the unique nutrition profiles of each state. The study was conducted in four phases as summarised in Figure 3.2. The details of procedures for each phase will be elaborated in Chapters 4 to 8.



Figure 3.2: Diagram of study phases.

The scope of the study is outlined as follows:

1. For Phase 1, the Small Area Estimation (SAE) of malnutrition analysis was carried out for Nigeria.
2. This study is interested only in the nutrition-sensitivity of non-health sectors and not in integrating the programmes of different sectors.
3. The study also focuses on the implementation period of nutrition-sensitive programmes and not agenda-setting.

3.7 Site selection

Nigeria is heterogeneous regarding national indices, economic development and various other indices that matter in this research. The study states were selected purposively using the following steps:

1. Security, crises-ridden or -prone areas at the time of study design were excluded. This excludes two regions out of the six geopolitical zones – the North East and South South regions of the country.
2. The states in the remaining four geopolitical zones were then categorised according to child undernutrition and overweight prevalence using data from the Nigerian Demographic Health Survey (NDHS).
3. Kebbi in the North West geopolitical zone was chosen purposively as a high undernutrition state (stunting at 60 percent) and Anambra in the South East geopolitical zone was chosen for lower undernutrition (stunting at 18.4 percent) (NPC & ICF, 2014).

3.8 Study location

Anambra State is in South East Nigeria, with the state capital in Awka and 21 LGA. The indigenous ethnic groups in Anambra State are the Igbo (98 percent of the population) and the Igala (2 percent of the population), who live mainly in the North Western part of the state (National Population Commission Nigeria, 2016). According to the 2006 census, the state has an estimated population of 4,055,048 (National Population Commission, 2006). Anambra is the second most densely populated state in Nigeria after Lagos State with a density of 840 people per km².

Kebbi State is in North East Nigeria, with the state capital in Birnin Kebbi and has 21 LGAs. It has an estimated population of 3,630,931 (National Population Commission, 2006), ranking 22nd of 36 states, with a population density of 56 people per km². The main indigenous ethnic group in Kebbi is the Hausa, with some members of Lelna, Bussawa, Dukawa, Kambari, and Kamuku ethnic groups.

3.9 Data collection procedures

A convergent parallel mixed methods design was used, where quantitative data and qualitative data collection and analysis were done concurrently (Creswell & Clarke, 2011). The study began with a quantitative arm (Phase 1) that used SAE methods to estimate LGA prevalence of stunting in Nigeria.

The qualitative arm explored operational and socio-political contexts, in a bid to determine the opportunities and constraints concerning setting nutrition-sensitive agendas. The operational phase (Phase 2) first assessed the nutrition-sensitivity of all programmes and activities in the four ministries in both states, and then went further to seek for the theory-based programme impact pathway of one programme in each ministry (Agricultural Transformation Agenda Support Programme 1 (ATASP-1), ECD Education, Environmental Sanitation, and Skills Acquisition. Phase 3 included content analysis of qualitative data from workshop participants, key informants and the subsequent scoring of the PCOM-RAT. In Phase 4, the findings from the previous phases were merged to develop a roadmap which is subsequently validated with the stakeholders. Procedures for the different phases have been discussed in detail in the subsequent chapters.

3.9.1 Mixed methods data analysis

Mixed methods refer to all procedures involved in collecting, analysing, and presenting quantitative and qualitative data in the context of a single study (Tashakkori et al, 2010). The analysis of mixed methods designs consists mainly of “mixing” the data to generate inferences, which are drawn both from the quantitative and qualitative data, as well as across it. The final step of data integration is often overlooked or poorly addressed in many mixed methods studies and has occurred since the introduction of the mixed methods design. The integration in this phase is achieved through embedding, which includes connecting and merging at multiple points (Fetters, Curry & Creswell, 2013). In this study, the quantitative data were used as a platform to inform the qualitative arm of the study. The quantitative data showed the LGAs of focus using modelling. Conversely, the qualitative stage explained the implementation of the nutrition-sensitive programmes that might have led to the malnutrition situation in Phase 1 and the presence or absence of political will that led to the existing malnutrition. The advantage of this approach was identifying malnutrition-prone areas and the ability to fully explore the implementation of nutrition-sensitive programmes and political will to target the areas. Data analysis for the phases are also explained in detail in the respective chapters.

3.9.2 Ethics

Research approval was obtained from the Human Health Research Ethics committee of Stellenbosch University (S13/09/171) (Appendix 1).

3.9.3 Institutional authorisation

The researcher first presented herself to the office of either the permanent secretaries or the Commissioner in most ministries, except the UBEC in both states where the early education is domiciled. In the case of education, the Chairman/Executive Secretary's office was contacted first. The Commissioners/permanent secretaries assented to the study and issued permissions for the study to be conducted. In Anambra Education, Welfare, and Environment communicated the consent through a letter. While the Ministry of Health endorsed the request for permission as evidence. In Kebbi, all the Ministries endorsed on the request for permission and kept the letter with them (see a sample of institutional approval in Appendix 2).

3.10 Conclusion

Selecting a philosophy to underlie one's research is important and the choice of the pragmatic stance for this study is significant. This chapter has presented a philosophical discussion on the implications of underpinning the MNIA with a pragmatic philosophy. The tensions and possibilities in merging the pragmatic philosophy and mainstreaming nutrition framework together were explored, highlighting the implications this has for developing interventions aimed at closing malnutrition gaps, more so theory-based interventions that begin from evidence-based knowledge and end with execution at programme sites.

The most important reason for underpinning the MNIA framework with pragmatic philosophy is the iterative and never-ending nature of developing interventions from epidemiological, operational, socio/political domains. Nevertheless, it presents the most realistic and holistic solution for mainstreaming nutrition and in effect malnutrition reduction. Furthermore, an overview of the research design was presented.

The following Chapters 4 to 8, presents each phase in detail, including a brief background, method description, results, discussion and implication of findings where appropriate.

CHAPTER 4

4 SMALL AREA ESTIMATION OF PREVALENCE OF STUNTING IN LOCAL GOVERNMENT AREAS IN NIGERIA

Abstract

Stunting is a major concern in Sub-Saharan Africa, with conditions associated with stunting resulting in widespread morbidity and mortality. Stunting control is also a complicated process that requires innovative approaches such as targeting small areas with a high stunting burden.

During the evaluation of geographic variations in stunting prevalence in Nigeria the small area estimation models were used to assess stunting in LGA.

Estimates of stunting varied dramatically among Local Government Areas in Nigeria, mostly across geopolitical zones. The highest prevalence was obtained in the North West zone of the country.

The findings show that though Anambra had lower average stunting prevalence, some LGAs in the state had medium stunting severity. In Kebbi State, all LGAs had high stunting severity although some LGAs were slightly better than others.

4.1 Introduction

One of the most important indicators for human development is survival. Under-five malnutrition accounts for about 45 percent of child mortality in the world (Black et al, 2013). In LMIC where the bulk of malnutrition is situated (UNICEF, WHO & World Bank Group, 2017), low resources inhibit the luxury of multiple or untargeted interventions. The impact of adequate nutrition, which is a function of both early nutrition (Black *et al.*, 2017) as well as the mother's nutrition (Victora *et al.*, 2008), cannot be overemphasised. For instance, iron and calcium deficiencies contribute to maternal deaths; maternal and child malnutrition leads to poor child development and low productivity in adulthood. Malnutrition during the first 1000 days of life leads to stunting and adult obesity and non-communicable diseases (Black et al, 2013).

Thus, an indicator of malnutrition informed one of the Millennium Development Goals (MDG), the prevalence of underweight and remains a visible part of the Sustainable Development Goals (prevalence of stunting, wasting and overweight). Malnutrition has the possibility of being transferred across generations, thus affecting unborn children (Shrimpton, 2010). It is undeniable that the fight against malnutrition has strengthened over the years. The UN agencies, many international NGOs and even governments have focused massively on eliminating undernutrition. The Global Nutrition Report (GNR) 2016 places Nigeria's malnutrition indices as needing improvement (IFPRI, 2016).

Eliminating malnutrition begins with the accurate measurement and delineating of populations at risk. The most popular measures of such nutritional status rely on anthropometrics which have been established as complete in assessing the current or potential malnutrition in children (Duggan, 2010). Advantages of the WHO standard anthropometry include being easy to access and comparability across regions and countries (Khadilkar, 2013).

For the fight against malnutrition to be successful, the adequate measurement of the population's nutritional status is needed, this is collected mostly through surveys. Most surveys are; however, collected to be representative at the national and regional levels, but not at the local level, where interventions are often targeted. These surveys thus lack the statistical power to provide sufficient local government or ward estimates of malnutrition. Thus, high within-region variations are smoothed over. These limitations at times mean that one-size-fits-all interventions, policies and programmes are designed and implemented for all. This occurs despite the need for targeting localised malnutrition hotspots. Targeting is also vital in LMIC where funds are scarce and needs dire. Census data can usually be used to find welfare measures for specific small areas. However, they hardly ever collect anthropometric measures, due to the high costs of doing so for the entire population. Economists have attempted to bridge these gaps by producing statistical models on geographically non-

representative survey data, which can then be applied at lower geographic granularity using census data. Lanjouw and Lanjouw (2003) pioneered the method of small area estimation (SAE) for poverty and inequality measurement. However, the methods extend easily to estimates of other welfare quantities.

In this chapter, the literature on SAE concepts and methods are discussed including its implications, as well as its previous and potential uses. Finally, methods and findings of this phase will be presented.

4.2 Small area estimation overview

Censuses and other administrative records (such as birth registration and even clinic records) have limited scope. While they collect extensive demographic data, funds and other logistical obstacles hinder them from collecting some other necessary health data such as malnutrition. On the other hand, health and household surveys collect nutrition data (such as stunting and child mortality) using smaller samples but can only provide reliable estimates for large geographic areas such as the whole nation or state. Prevalence of malnutrition cannot be calculated for all areas using survey data because sampling design often leaves out many parts of a given country.

The need for reliable small area statistics stems from the need to prioritise development solutions and to target areas where interventions will return the most benefits. Small areas include local governments, wards, districts and municipalities, among others. It is called this because of the small sample size in the areas and small land areas. In these cases, models are linked using secondary data such as census, administration data, and spatial data. The approach borrows from the strengths of each source, and then conducts indirect estimates by transferring information from surveys to census small areas through a modelling process (Zanutto & Zaslavsky, 2002).

This method combines the strength of household surveys with national data (usually census data, spatial data or both) to make further indirect estimates of poverty at the smallest unit possible. Application to poverty has been conducted mainly by economists, especially in estimating poverty maps for small areas that enable targeted solutions to vulnerable areas. Regarding poverty analysis, expenditure data is often absent from censuses, but is available in smaller household surveys. Prediction models are built on survey data using variables such as education, the age of household members, and other poverty or deprivation indicators as inputs. Out-of-sample prediction is done in the census. Because the latter covers all small areas in a country, the predictions can be used to estimate the welfare indicator for geographic areas that were not included in the survey (Leeb, 2008). In the same vein in nutrition, stunting or underweight is mapped for small spaces across time (Simler,

2006; NIS, MoP & WFP, 2013; Sohnesen et al, 2017). The first and primary advantage thus becomes the availability of smaller areas estimates of stunting rates that enables targeted solutions and intervention in the case of malnutrition.

Another advantage of these methods of calculating deprivation indices (be it poverty or malnutrition) at smaller levels, is that it also saves cost. These are typically costs that would have been incurred to increase survey sample sizes (to cover the entire country), or to add more variables to censuses (such as anthropometric measures). These costs are re saved with SAE.

Two main types of estimation include direct and indirect estimation. A direct estimator uses values of the variable of interest from the sample units in the geographic area of interest. A significant disadvantage of such direct estimators is the presence of large standard errors: which is mostly obtainable if the sample size within the geographic area is small or nil. An indirect estimator employs values of the variable of interest from a domain⁹ and/or time other than the domain and time of interest. Indirect estimators could be domain indirect, time indirect or both domain and time indirect estimators. A domain indirect estimator uses values of the variable of interest from another domain but static time (Rao, 2003). A time indirect estimator uses values of the variable of interest from another time but not from another domain. An estimator that is both domain and time indirect utilises values of the variable of interest from another domain and another time period (Rao, 2003; Sinha & Rao, 2009; Rao & Molina, 2015).

Most common methods of estimating small area maps include the World Bank Method using the free software PovMap (Elbers, Lanjouw & Lanjouw, 2003). This method has been modified in different forms for various country estimates like Brazil (Elbers 2001), South Africa (Alderman 2002), Philippines (Haslet & Jones 2005), Cambodia (Haslett, Jones & Sefton, 2013) and Bangladesh (Haslett et al, 2014).

Mapping malnutrition in Nigeria has additional complications. While various surveys exist that monitor stunting and underweight among children over time (NPC Nigeria & ORC Macro, 2004; National Population Commission, 2013; NPC & ICF, 2014; NBS/UNICEF, 2017), none covers the country sufficiently to enable the design of geographically targeted interventions. While this is standard in most countries, an additional complication is the lack of micro-level census data that is necessary to conduct estimation for small areas. The last census was done in 2006 and microdata is unavailable for official reasons. As a result, the current analysis relies on connecting survey data via Global Positioning System (GPS) coordinates to publicly available geospatial data. Prediction models are therefore, based

⁹ "Domains are defined by partitioning the population using unit characteristic information similar to that needed to define the original population" (Schaible, 1993).

on data that also have national spatial coverage. Estimates can therefore, be done at the same geographic granularity as the geographic data that is available.

4.3 The motivation for this phase and mapping of malnutrition in the world

Generally, single maps are insufficient, but when utilised together, combinations of maps give a detailed picture of undernutrition rates and where the largest numbers of undernourished people are located. The maps and small-area estimate of undernutrition help guide prioritisation and geographic targeting of assistance programmes, whether these are based on rates of or absolute number of undernourished by area. Maps are also standard tools for attracting commitment from stakeholders on which geographic areas to prioritise, contingency planning and needs estimation. Maps can also aid in policy analysis and planning. The Sustainable Development Goals' focus on ending malnutrition calls for detailed geographic information on prevalence and severity which will in turn aid in addressing problem most effectively. Small area estimation maps of malnutrition have been built for Nepal, Tanzania, Cambodia, Brazil, Bangladesh, and Ethiopia (Simler, 2006; Haslett et al, 2010, 2014; Haslett, Jones & Sefton, 2013; Sohnesen et al, 2017).

4.4 Objective

The objective of this phase is to construct Local Government Area-level maps for stunting prevalence in Nigeria, with a focus on two states: Anambra and Kebbi.

4.5 Methodology

This retrospective quantitative analysis used the SAE model to analyse survey and spatial data to produce LGA estimates of stunting prevalence.

4.5.1 Modelling data

The chapter focuses on stunting prevalence estimation using data from Nigeria Demographic Health Survey (NDHS) and Spatial data. The NDHS estimates are accurate, with low bias and high precision (having small variance) only at the state level in Nigeria. Spatial data are available and representative of the entire country. However, the data does not directly represent malnutrition. The model building phase therefore, depends on establishing strong correlations between spatial data and malnutrition

(even if the pathways between the environmental or geographic phenomenon and malnutrition is not specified). Spatial data such as night lights have been shown to be highly correlated with various welfare indicators. Night-time lights are a proxy for Gross Domestic Product (GDP). For instance, Sum of lights (SoL) data at sub-national or gridded levels has been used to generate cross-sectional GDP (Ghosh et al, 2010). Night time satellite imagery has been used to estimate the sub-national GDP and GDP per capita series for 2001 to 2013 in Turkey (Basihos, 2016). The second reason behind the use of nightlights is that it is available in greater geographic details than other survey collected variables (Mirzabaev et al, 2016). It is also available at a higher time-frequency than standard surveys (Henderson, Storeygard & Weil, 2012). In addition, it also allows for the evaluation of time-dependent events such as conflict and the discovery of minerals. In this kind of application, nightlights have been used to measure income growth in SSA, where it was found that non-coastal areas grew one-third times faster than coastal areas. Non-malarial areas also grew faster than malarial areas by 1/3 to 2/3 annual percent point (Henderson, Storeygard & Weil, 2012). This finding thus suggests that nightlights could be a proxy for specific economic variables. In situations where data are unavailable or weak, this correlation augments the set of proxies for economic activity.

The study also depended on Normalised Differenced Vegetation Index (NDVI), another spatially measured variable and an indicator of vegetative health across space. Scholars have applied NDVI to proxy for income, poverty and health outcomes (Foster & Rosenzweig, 2003; Imran, Stein & Zurita-Milla, 2014). Foster and Rosenzweig (2003) studied the relationship between income and forest cover around villages in India. In their study, NDVI was applied to measure forest cover for a 10 km radius from villages. Imran, Stein and Zurita-Milla (2014) employed NDVI in addition to rainfall, topographical, livestock data, and population density to generate the map of poverty in Burkina Faso. A welfare model was created by regressing these variables on a communal asset index at community level, the model was subsequently used to predict pixel level welfare. Weeks et al (2012) employed it in mapping health outcomes in Accra, where they found that neighbourhoods with the lowest housing quality also has the least vegetation cover and worst health outcomes.

Other variables used in the researchers modelling include urban/rural variation and population density. Literature has confirmed the existence of urban-rural variation in malnutrition indices in various populations. Some scholars have attributed this to cumulative effects of socio-economic variables such as better parental education and household economic status (Smith, Ruel & Ndiaye, 2005; Mussa, 2014). Although population density has not been directly linked to malnutrition, it leads to land pressure and reduction in soil quality which might lead to malnutrition (Drechsel et al, 2001; Sonneveld & Keyzer, 2003; Lal, 2009).

An agricultural indicator which is a function of harvested area and yield of 175 crops was also included in the researchers model (Monfreda, Ramankutty & Foley, 2008). The data was derived from agricultural census data and gridded cropland data, excluding fallow land and crop failures resulting in non-harvested crops.

4.5.2 Data sources

The 2013 Nigeria Demographic Health Survey was conducted by the National Population Commission (NPC & ICF, 2014). ICF Macro International provided financial and technical assistance for the survey through the United States Agency for International Aid (USAID). Other funders included USAID, the United Kingdom Department for International Development (DFID) through PATHS2, and the United Nations Population Fund (UNFPA). The report estimated the national prevalence of child stunting at 37 percent, underweight at 29 percent, wasting at 18 percent and 4 percent overweight (NPC & ICF, 2014). Height, weight, and age were used to calculate individual HAZ, WHZ, and WAZ using the WHO growth standards for children below the age of five (Garza & de Onis, 2004; WHO Multicentre Growth Reference Study Group, 2006; Bloem, 2007). The data was categorised to measure the prevalence of moderate stunting (HAZ less than -2SD). For exclusion criteria, just as with NDHS calculations, missing gender, age or irregular anthropometric variables were excluded from the survey. This study used the composite product (enhanced vegetation index, night-time LST, rainfall) from MODIS Terra vegetation Indices (NASA EODIS LP DAAC, 2015a, 2015b) and IPUMS Terrapop (Minnesota Population Centre, 2015). Adult literacy rate by LGA for males and females was obtained from the 2010 Literacy Survey (National Bureau of Statistics, 2010). The Global Human Settlement grid by Pesaresi and Freire (2016) was also included in the model. This dataset contained layers of degree of urbanisation model - the urban centres, urban clusters, and rural cells categorisation was used. Grade of sub-soil being acidic and soil organic carbon stock at 0 depth were also included (ISRIC World Soil Information, 2018).

Table 4.1: Summary of data sources

1	2013 NDHS
2	MODIS Terra vegetation Indices – Enhanced vegetation Index, Night time LST and rainfall
3	Adult literacy rate by LGA
4	Global Human Settlement grid – urban centres, urban clusters and rural categorisation
5	Grade of sub-soil being acid
6	Soil Organic carbon stock at 0 depth

4.5.3 Study area

In Nigeria, there are six regions and 36 states with 774 LGA. The ward is the smallest geographic unit. These wards have elected ward chairmen, LGAs have LGA chairs, and the states have governors. No administration occurs at regional level, though household surveys aggregate at that level to give a view of regional differences in malnutrition. The study area for this SAE are the 774 LGAs in Nigeria.

4.5.4 Data collection procedures

The analysis first obtained NDHS state estimates and then proceeded to use patterns in this data to derive malnutrition estimates for smaller areas across space, in this case, LGAs. The study built a “census dataset” (in the sense of national spatial coverage, not national individuals covered) using night lights, vegetation health, land cover data, crop types, and temperature. This dataset was built into QGIS software. The availability of GPS coordinates of the clusters in the NDHS ensured that it could be linked to these indicators to the individual survey data. Predictive malnutrition models were built in the DHS, with only the spatial variables as covariates. Using small area estimation, predictions for the rest of the country was made based on the “spatial census”. The researchers and Prof. Dieter von Fintel (one of the supervisors and an economist) were responsible for building the model.

The estimation itself involved the following major steps: the 888 clusters contained in the NDHS did not cover the entire country. Given that the researchers did not have a census with demographic characteristics, these individual-level indicators did not aid the model-building process. All correlates of malnutrition were therefore, environmental and determined by conditions in each of the 888 locations. Because the approach does not rely on individual variation in HAZ, the dataset was first aggregated to 888 stunting prevalence rates. While it is true that small areas are difficult to represent with NDHS data, cluster aggregates are usually reliable for the few areas that were sampled. This is because a random sample of households is taken to cover most of the cluster. These prevalence rates are then modelled as a function of spatial-environmental covariates. GPS coordinates for clusters contain an offset to maintain anonymity. Therefore, it is necessary to average spatial data in a region of 5 km around the geographic point and match it to the malnutrition prevalence rate from the NDHS.

The model relies on a fractional probity specification (Wooldridge, 2010), which is appropriate for variables that range between 0 and 1. Separate models are built for each of Nigeria’s six regions, given local variations in the relationship between environmental conditions and malnutrition.

Models cannot estimate prevalence rates perfectly. It is therefore, standard to incorporate regression error terms into the prediction phase. Means of error terms and its variance across LGAs (those which

are found in the NDHS) were estimated. The mean and variance were recorded and used to simulate a locational error in the prediction phase, similarly to Elbers et al (2003). A similar process was then followed for the cluster-level error that remained after removing LGA-specific variation.

In the prediction phase, the model coefficients and a full set of spatial data that covers the whole country were used to predict malnutrition rates for a set of 5 x 5 km areas. No predictions were generated for areas that were unpopulated. At this stage, the error terms were incorporated. Hundred simulations were run, each adding a random draw from a normal distribution with means and variance parameters from the NDHS locational error term estimates and another for the cluster-level error term estimates. Each grid cell therefore, had 100 estimates of malnutrition, providing a distribution with which to conduct statistical inference.

The 100 simulated grids were each aggregated at the chosen geographic level (in this case LGAs) to provide small area estimates. The mean of the 100 SAEs then constitutes the estimate for that location, while the standard deviation of the 100 draws estimated the precision of the estimator. The latter was used to construct confidence intervals. The smaller the geographic area chosen, the larger the standard error becomes. The researcher worked closely with the expert on modelling to obtain the estimates described above.

4.5.5 Limitations of the study

There are several limitations to this study. First, the unavailability of Nigerian census data led to the use of a spatial dataset, which precludes including individual and home influences on malnutrition. These are undoubtedly essential determinants, though there was no way to incorporate it into the model. An available Nigerian census dataset would have enabled an estimation from a 'real' population census. Secondly, high standard errors of SAE and low fit in the model-building phase made it impossible to rank the LGAs with precision. The study's estimation was not appropriate for assigning targeted and priority LGA, mainly because the model may have underestimated or overestimated for some areas.

Also, limitations of the NDHS have inadvertently been fed into this analysis. For example, incorrect measuring or recording of either height, weight or age of children. These led to the deletion of many missing cases from the survey data. Surveys were also likely to skip areas of conflict which had the potential of skewing the data.

A very important omission in this analysis was the unavailability of the LGA under-5 dependency ratio and birth rate to enable the estimation of an absolute number of children malnourished in each LGA.

This information would have been useful in mapping populations of stunted children and subsequent comparison with the prevalence map. Sohnesen et al (2017) recognised this variation between malnutrition indicators. The share of malnutrition, prevalence and an absolute number of children malnourished were examined, concluding that the areas with the highest prevalence are not always the woredas (sub-national categorisation equivalent to LGA) with the highest share.

4.6 Results

To mitigate the limitations, the study while presenting the researchers findings, makes a comparison with the estimates of the Institute for Health Metrics and Evaluation (IHME) study for the ranking of LGA according to stunting prevalence (Osgood-Zimmerman et al, 2018). Osgood-Zimmerman et al (2018) used Bayesian estimation to calculate the child growth falter in 51 African countries at 5 X 5 km spatial resolution. This finding was published in January 2018 while the estimations of this study were ongoing. In Table 4.2, the researcher's estimates are compared with the state estimates of NDHS and Osgood-Zimmerman et al (2018). The researchers find that estimates of the study states are in close range. About half of NDHS state-level estimates (18 out of the 36 states and 1 capital) fall within our estimates' confidence intervals. The rest are not within our confidence intervals. Looking at the location of the states, the researchers believe the model performed fairly in the South East (3/5), South West (4/6), South-South, the oil states (3/6), North central (3/7), and North West (5/7) regions of the country. It fared poorly in the North East region (0/6) in the country where the current Boko Haram crisis exists. Anambra and Kebbi States, the focus of this research has been highlighted below.

Table 4.2 The study's stunting prevalence estimates (percent)

	State	Study's stunting prevalence	95 percent Confidence Interval (CI)		NDHS ¹⁰	Does NDHS estimate fall in the study's CI?	IHME ¹¹
			Lower bound	Upper bound			
1	Abia	20.3	16.1	24.6	17.3	Yes	22
2	Adamawa	50.4	44.3	56.4	34.3	No	44.8
3	Akwa-Ibom	23.2	18.2	28.2	22.4	Yes	29.4
4	Anambra	19.6	15.7	23.6	18.4	Yes	19
5	Bauchi	69.8	62.7	76.8	50.8	No	59.8
6	Bayelsa	12.9	2.5	23.3	20.5	No	28
7	Benue	33.5	27.7	39.3	22.6	No	32.4
8	Borno	70	64.2	75.9	26.8	No	44.6
9	Cross-River	13.7	7.1	20.3	21.7	No	31.2
10	Delta	17.1	10.8	23.3	14.9	Yes	27.9
11	Ebonyi	20.8	15.4	26.3	16.2	Yes	27
12	Enugu	28	22.1	33.9	11.7	No	19.7
13	Edo	20	13.5	26.6	15.8	Yes	28.2
14	Ekiti	36.6	31.8	41.5	19.2	No	27.3
15	FCT	26.5	14.4	38.6	20.6	Yes	30.9
16	Gombe	79.7	69.1	90.2	47.5	No	59.5
17	Imo	9.8	5.9	13.6	16.9	No	20.3
18	Jigawa	59.9	54.2	65.6	59	Yes	64.7
19	Kaduna	61.7	54.9	68.6	56.6	Yes	57.5
20	Kano	60.9	56.8	65.1	48.3	No	56.7
21	Katsina	59.6	55.4	63.8	58.5	Yes	66.2
22	Kebbi	61.6	55.6	67.6	60.6	Yes	62.5
23	Kogi	50.6	45.2	56.1	23.1	No	33.1
24	Kwara	32.5	26.1	39	27.1	Yes	37.6
25	Lagos	20.2	13.5	26.9	17	Yes	22
26	Nasarawa	37.2	29.2	45.2	34.5	Yes	42.8
27	Niger	27.3	20.6	34	34.2	No	48.3
28	Ogun	20.7	13.6	27.9	23.8	Yes	34.2

¹⁰ Nigeria Demographic Health Survey¹¹ Estimates from Osgood-Zimmerman *et al*, (2018)

29	Ondo	24.4	18.5	30.4	24	Yes	32.2
30	Osun	26.5	21.2	31.8	20.5	No	24.9
31	Rivers	26.7	22.2	31.3	16.1	No	19.7
32	Oyo	27.1	20.4	33.9	27.2	Yes	29.2
33	Plateau	18.6	12.4	24.7	35.8	No	46.6
34	Sokoto	60.7	54.9	66.5	51.6	No	60.2
35	Taraba	84.5	77.6	91.4	43.4	No	48.7
36	Yobe	78.6	72.3	84.8	49.3	No	61.6
37	Zamfara	61.5	54.2	68.7	55.9	Yes	67.2

In Figure 4.1 and Figure 4.2 below, the researchers also present the study SAE estimation's correlation with the IHME and NDHS estimates respectively using scatter graphs with linear fits. It shows a strong overlap in state-level estimates across NDHS-our estimates and IHME-our estimates. The researcher's models are thus successful but require caution in interpreting the result in light of these variations.

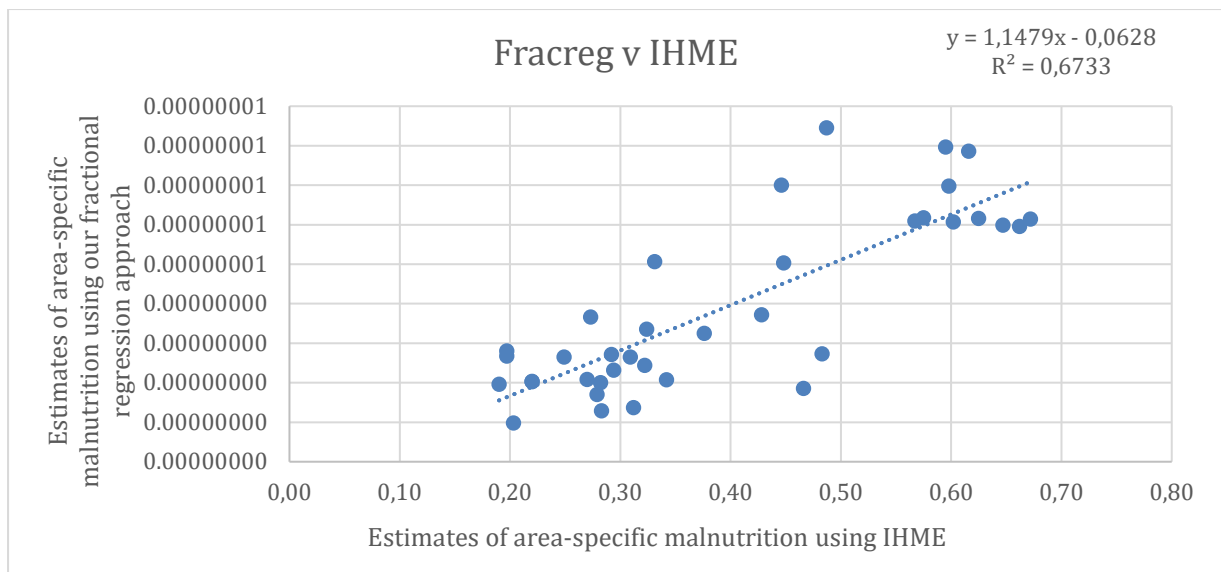


Figure 4.1: Correlation between the study's estimate and IHME estimate.

Fracreg – Fractional response regression

IHME – Estimates from Osgood-Zimmerman *et al.* (2018)

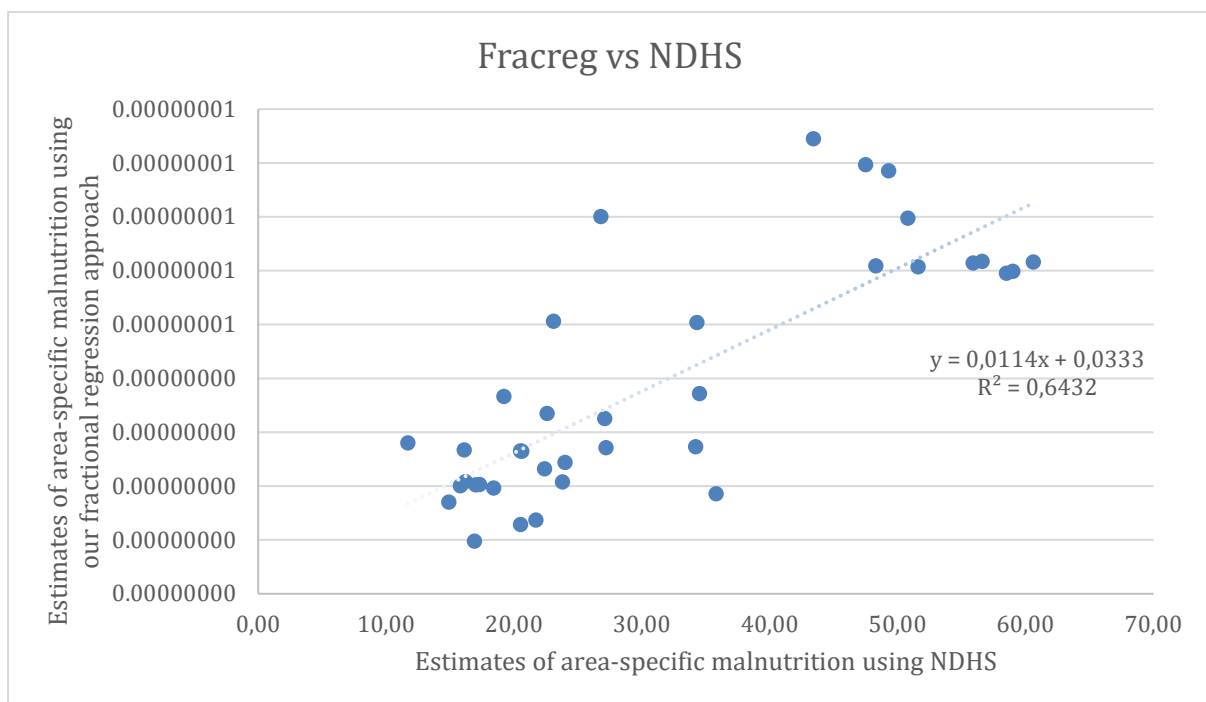


Figure 4.2: Correlation between the study's estimate and the NDHS.

Anambra and Kebbi State estimates match those from the NDHS well. However, the researcher's confidence intervals are wide once estimates are produced at the small area level. This means that the estimates at the LGA level cannot always be distinguished from one another statistically so that

rankings are tenuous. In the estimates of Anambra State for instance presented as Table 4.4 the confidence intervals were so broad that many of the estimates cannot be distinguished from zero. Other methodologies were explored to obtain alternative prediction models; better fit is associated with smaller standard areas at the small area. However, the alternatives did not improve the situation¹².

Since Nigeria was included in the African-wide estimation of stunting, the alternative estimates to those presented here can improve the targeting of LGAs for malnutrition. Based on the Osgood-Zimmerman et al (2018) estimates, most geopolitical zones are homogenous with a similar level of stunting across LGA. This is shown by the boxplots in Figure 4.2 by the narrow ranges of the levels across the LGA within each zone. Zones with marginal variation include South East, South-South, North West and South West. The higher variation in north-central and north-east indicates the need for spatial targeting within LGAs in the states within the region. In the worst-performing zone of North West, there are few LGAs with prevalence below 50 percent. In the South East, South-South and South West geopolitical zones, there are outlying LGAs with very bad prevalence of stunting above the region's average that should be targeted.

¹² In this study alternatives were also pursued. Boosted regression trees and usual ordinary least squares models were used to model HAZ. However, fractional response methods provided the most reliable estimates.

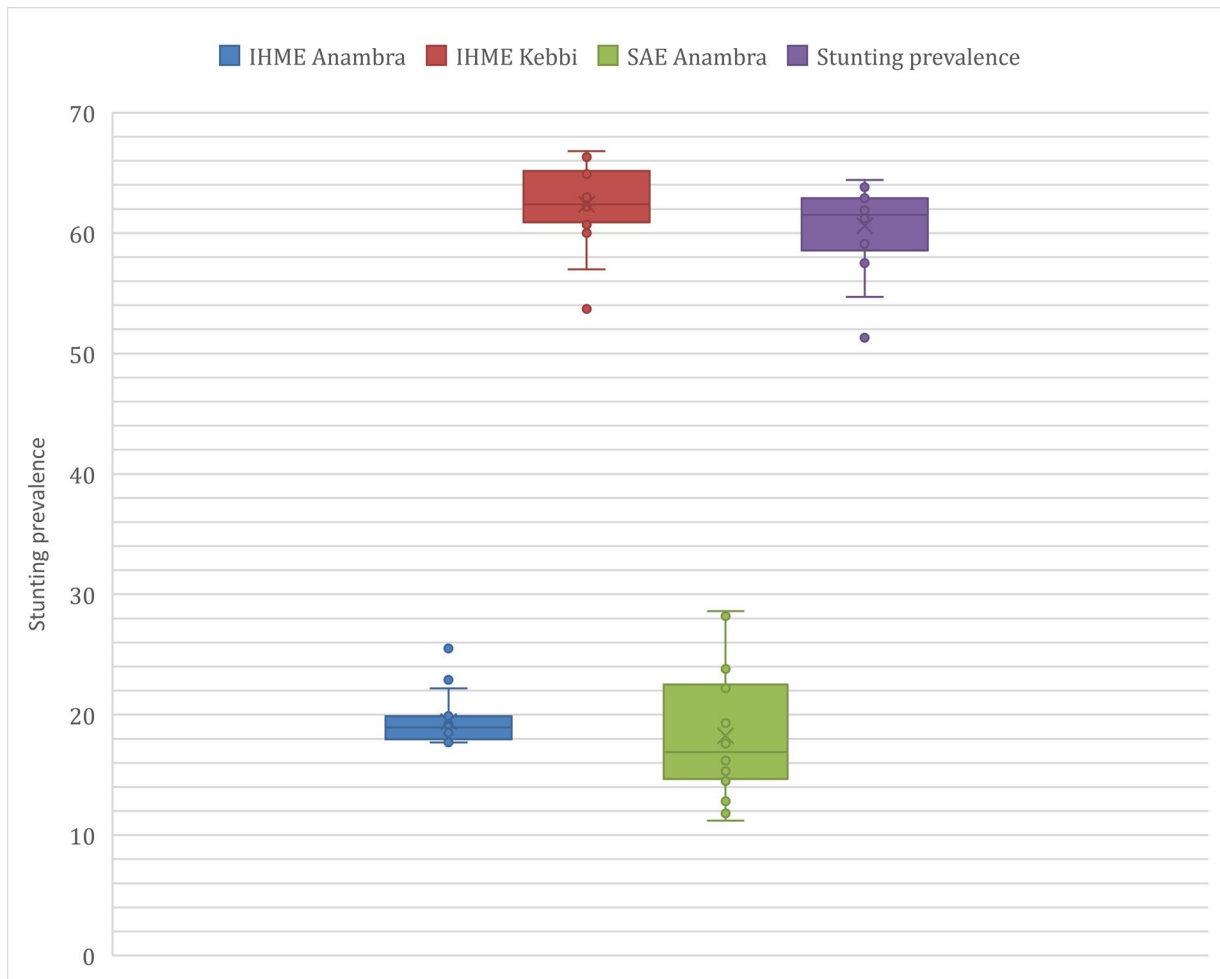


Figure 4.3: Comparison of this research's SAE stunting estimates vs Osgood-Zimmerman et al (2018) estimates, Source: Based on Osgood-Zimmerman et al (2018) estimates and this study's research findings.

Concerning the study states, when inspecting Osgood-Zimmerman et al (2018), Kebbi State has a broader variation than Anambra State as shown in Figure 4.3. Only one LGA outliers in the negative direction. The researcher's estimated lower prevalence in Kebbi State than Osgood-Zimmerman et al (2018). However, the prevalence's in both studies still showed between 50 to 60 percent stunting. When comparing estimates of Anambra State, the researcher's estimates had very wide variation as seen in Figure 4.3. These figures must also be taken considering the very wide confidence interval that return negative values in some LGAs in Anambra State (See Table 4.4). Also, in Anambra State, the prevalence's were between 15 to 25 percent.

4.6.1 LGA Analysis of Kebbi State

Table 4.3 presents SAE estimates in comparison with existing literature.

Table 4.3: Kebbi State LGA stunting estimate (percent)

LGA	Study's stunting prevalence	95 percent Confidence Intervals (CI)		IHME ¹³	Does IHME estimate fall in the study's CI?
		Lower bounds	Upper bounds		
Aliero	64.4	42.3	86.6	62.6	Yes
Arewa-Dandi	61.9	39.7	84.0	62.3	Yes
Argungu	57.5	35.9	79.1	62.2	Yes
Augie	61.5	38.7	84.4	61.2	Yes
Bagudu	54.7	30.3	79.1	61.2	Yes
Birnin Kebbi	62.9	40.2	85.7	61.1	Yes
Bunza	61.5	37.1	85.9	66.3	Yes
Dandi	57.6	35.9	79.3	62.4	Yes
Fakai	61.2	39.8	82.6	62.7	Yes
Gwandu	64.0	39.6	88.5	63.2	Yes
Jega	61.9	37.2	86.5	65.4	Yes
Kalgo	51.3	27.7	74.8	66.3	Yes
Koko/Besse	59.4	34.6	84.2	63.0	Yes
Maiyama	62.4	37.7	87.1	66.8	Yes
Ngaski	59.1	37.5	80.6	53.7	Yes
Sakaba	61.2	38.5	83.8	60.0	Yes
Shanga	62.2	38.0	86.3	60.4	Yes
Suru	63.2	38.6	87.7	66.5	Yes
Wasagu/Danko	62.9	41.6	84.2	64.9	Yes
Yauri	63.8	38.4	89.3	57.0	Yes
Zuru	58.0	36.7	79.2	60.7	Yes

¹³ Based on Osgood-Zimmerman et al (2018)

Aliero (64.4 percent), Gwandu (64 percent), Suru (63.2 percent), and Yauri (63.8 percent) LGAs in Kebbi State were estimated by the researchers SAE model to have the highest prevalence of stunting in the state. According to Osgood-Zimmerman et al (2018), only two LGAs (Ngaski and Yauri) out of the 21 LGAs of Kebbi State has a prevalence of less than 60 percent stunting. The researchers contrarily found that about seven LGAs had prevalence less than 60 percent. According to estimates by Osgood-Zimmerman et al (2018), others had a prevalence of 60 percent and above, though no LGA had stunting prevalence above 67 percent as recorded in some other LGA in the North-western region. The four LGAs with the highest prevalence were Bunza (66.3 percent), Kalgo (66.3 percent), Maiyama (66.8 percent), and Suru (66.5 percent). Though the highest in state average, the LGAs with the highest burden of stunting in the country are not located in the state. They are found in among others, Katsina State (Mashi, 74.1 percent), Katsina State (Sandamu, 71.1 percent), Zamfara State (Anka, 71.1 percent), and Jigawa State (68.8 percent).

4.6.2 LGA analysis of Anambra State

Table 4.4 presents the researchers study's SAE estimates for LGAs in Anambra State in comparison with existing estimates.

Table 4.4 Anambra State LGA Stunting estimate (percent)

LGA	Study's stunting estimate	95 percent Confidence Interval (CI)		IHME	Does IHME estimate fall in the study's CI?
		Lower bounds	Upper bound		
Aguata	17.6	0.3	34.9	17.7	Yes
Anambra East	16.2	0.8	31.7	20.0	Yes
Anambra West	15.3	1.2	29.4	25.5	Yes
Anaocha	15.7	2.6	28.7	17.8	Yes
Awka North	28.6	12.3	45.0	19.9	Yes
Awka South	18.1	2.1	34.2	17.9	Yes
Ayamelum	12.8	-4.2	29.7	22.9	Yes
Dunukofia	11.8	-4.2	27.9	19.2	Yes
Ekwusigo	22.6	7.3	38.0	19.1	Yes
Idemili North	12.1	-4.6	28.8	19.1	Yes
Idemili South	23.8	7.6	39.9	18.5	Yes
Ihiala	19.8	4.4	35.2	19.2	Yes
Njikoka	11.2	-5.3	27.7	18.8	Yes
Nnewi North	14.5	-0.9	30.0	18.1	Yes
Nnewi South	15.1	-0.9	31.2	18.6	Yes
Ogbaru	19.3	3.9	34.6	22.2	Yes
Onitsha North	28.2	12.1	44.3	19.8	Yes
Onitsha South	N/A	-1.5	29.3	N/A	N/A
Orumba North	22.2	6.6	37.7	17.7	Yes
Orumba South	15.9	1.2	30.7	17.9	Yes
Oyi	24.4	10.3	38.4	18.6	Yes

In Anambra State according to the study's findings, only 5 LGA have a prevalence of 20 per cent and above. These LGA are Awka North (28.6 percent), Ekwusigo (22.6 percent), Onitsha North (28.2 percent), Orumba North (22.2 percent), and Idemili South (23.8 percent).

These estimates differ from the ranking of LGAs according to Osgood-Zimmerman et al (2018) in which 4 LGAs were above 20 percent: Anambra West (25.5 percent), Anambra East (20 percent), Ayamelum (22.9 percent), and Ogbaru (22.2 percent). All other LGAs range between 17 to 20 percent. Anambra West in Anambra State with a prevalence of 25.5 percent has the highest stunting prevalence in the South East region. The wide CI also meant that some LGAs returned negative lower bounds. These LGAs have been highlighted yellow in Table 4.4.

4.7 Discussion and conclusion

This chapter presents two salient points, firstly that prevalence of stunting greatly varies between the two study states of Kebbi and Anambra. Secondly, that intra-state analysis presented highlights the difference of LGA prevalence, which is marginally important. Both states had positive-deviant LGAs that should be investigated to draw out factors influencing nutrition positively. Being that this analysis did not include possible underlying factors to the prevalence, it is thus hard to draw out linkages. Despite that, stunting has been linked to socio-demographic and economic factors some of which were discussed in Chapter 2.

Could LGA prevalence be a result of the distribution of stunting risk factors? Household poverty (Fotso *et al.*, 2012; Waibel and Hohfeld, 2017) and education (Kassouf and Senauer, 1996; Engle *et al.*, 2011; Alderman and Headey, 2017; Vollmer *et al.*, 2017) has been shown to be associated with stunting. This may explain why Kebbi state with lower poverty and education prevalence has LGA prevalence ranging from 51% to 64%. While Anambra had lower stunting prevalence ranging from 11% to 29%. Further research is needed to determine the exact mechanism for interstate and intra state variation. It was not this study's objective to understand why stunting varied across LGAs.

This chapter has also described a method of estimating stunting prevalence at the LGA level in Nigeria using the NDHS 2013 and spatial data. This chapter has demonstrated the application of the small area estimation techniques to derive LGA estimates of stunting using survey and spatial data. SAE is well-developed and well-utilised in economics (Elbers, Lanjouw & Lanjouw, 2003; Haslett & Jones, 2008b) and also in different aspects of healthcare (Malec, Davis & Cao, 1999; Simler, 2006; Haslett & Jones, 2008a; Li et al, 2009; Haslett, Jones & Sefton, 2013; Cataife, 2014; Haslett et al, 2014).

While Osgood-Zimmerman et al (2018) mapped growth failure in Africa using a Bayesian generalised linear model with a correlated space-time error, the analysis for this chapter employed a more easily reproducible approach using fractional response models. However, the limitation is that standard errors are large, thus imprecise estimates cannot be used to rank small geographic areas confidently.

Furthermore, estimates of a total number of stunted children are not reliable, since LGA child populations are also not in the public domain. At most, it is possible to estimate stunting prevalence in the various areas. Lastly, validation of small-area estimates by visits to these areas after modelling is sometimes useful. In addition to verifying estimates, it does provide the foundation for qualitative findings to be sought and understood. This also opens the findings of the modelling for discussion. This is based on the cautious observation that the technique aggregates and as such minute precise information may be lacking. The over adjusted or under adjustment of small area estimates has also been previously reported (Yu et al, 2007). In other words, it paints a whole picture. The down side of validation is the funding requiring for such exercises to happen.

The developing world dramatically needs small area estimates of health indicators, especially malnutrition, to enable innovation, priority and targeting of interventions in both programming and policy making. The data of LGA estimates of stunting would be an essential reference for stakeholders at the state and LGA levels to measure needs. In the absence of verified population estimates and the under-five proportion, it might be currently impossible to come up with an absolute number of stunted children in the different LGAs, unless states could have a manner to estimate total under five population stunted even when proportions are low.

The SAE stunting prevalence was used to inform Phase 2 processes.

CHAPTER 5

5 NUTRITION-SENSITIVITY OF PROGRAMMES IN ANAMBRA AND KEBBI STATES, NIGERIA

Abstract

Nutrition-sensitive programmes play a protective and preventive role against malnutrition incidence in the population, in addition to supporting access to nutrition-specific programmes.

The objective was to assess the nutrition-sensitivity and the potential of four sectors: agriculture, education, water sanitation and hygiene (WASH), and social welfare to deliver nutrition, in the study states.

A qualitative research approach was used. The sectors were assessed based on criteria for nutrition-sensitivity and for the potential to be nutrition-sensitive. Each sector is then summarised to show strengths, weaknesses and gaps to be filled for programmes to be nutrition-sensitive.

Almost all the programmes were averagely nutrition-sensitive, and almost half had excellent potential to be nutrition-sensitive. Targeting needs to be strengthened across all programmes and sectors. All the sectors had efficacious interventions from the proven literature that could be strengthened to impact nutrition holistically. Only the agricultural programmes had excellent implementation, the rest were sub-optimal while the Ministry of Environment was the weakest. The lack of integration or point of convergence meant that the programmes and sectors worked as stand-alone without the mutual benefits that each extends to the other. Despite having the best implementation, the agricultural programme had the least coverage and thus not in a position to extend nutrition-sensitive benefits to the whole LGA, in this regard, programmes like Environmental health which cover the state were better equipped.

Investments in nutrition-sensitive sectors can help reduce malnutrition prevalence. Strengthening programme delivery, coverage, utilisation and linkage might help achieve this reduction.

5.1 Introduction

The most sustainable approach to reducing and eliminating malnutrition of all kinds is to employ nutrition-sensitive interventions as the vehicle. These interventions act as a preventive mechanism. It also becomes an entry point to nutrition-specific interventions. Taking the opportunities that these sectors provide is vital to reducing the prevalence of malnutrition, preventing newer incidences and sustaining the reduction or prevention tempo. These programmes include agriculture and food security, social safety nets, early childhood development, maternal mental health, women empowerment, child protection, classroom education, water and sanitation, and health and family planning services. They are found mostly in the underlying causes of the UNICEF conceptual framework (Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013). Nutrition-sensitive programmes are excellent avenues for scaling up nutrition-specific interventions and providing the stimulating environment needed for young children to grow and develop (Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013).

5.2 Criteria for mainstreaming nutrition-sensitivity

The literature review in Chapter 2 has critically explained the role of nutrition-sensitive sectors in enhancing malnutrition interventions. This section will review the different criteria that makes a programme nutrition-sensitive. The section will also provide examples of successful programmes or instances where such criteria have been or are applied, and where possible draw critical lessons from the experiences.

Core criteria that make programmes in cross-cutting sectors nutrition-sensitive include integration, addressing underlying determinants of nutrition, large-scale implementation, targeting of poor populations and vulnerable people in the life course, delivery platform for nutrition-specific intervention, integrated to nutrition goals and actions, and improving women's overall empowerment (Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013). These criteria are expanded upon below:

5.2.1 Integration

Integration as a concept has been studied more than others. Integration comprises any joint multisectoral action across sectors such as agriculture, education, and social protection. The inclusion that might occur with including nutrition into the nutrition-sensitive sectors are not treated as integration in this study. Instead it is classified as utilising nutrition-sensitive sectors to deliver

nutrition-sensitive interventions, and such delivery mechanisms are discussed further down in this section.

Following the consensus that sectors at the underlying determinants level of the UNICEF conceptual framework are all needed for the adequate nutritional status, the question is how? (UNICEF, 1990; Garrett, 2008; Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013). Including nutrition into these sectors and using nutrition indicators in quality control becomes the template of multisectoral integration (The World Bank, 2006; UNSCN & SUN, 2011). That said, integration need not be total and might be as little as ensuring that programme and intervention beneficiaries are aware of the other programmes and can access it timely when needed. Integration classification can be based on the interconnectedness of the sectors. A possible classification of integration includes: trans sectoral, intersectoral, and multisectoral (Harris & Drimie, 2012) or integration, collaboration, coordination, and cooperation (Kim et al, 2017). Both definitions and classification are similar and based on Axelsson and Axelsson (2006).

The general importance of integration is the potential it must link programmes together and maximise benefits for users. This benefit accrues whether the integration is intra- or inter-sector. Numerous interventions have seen nutrition benefits by aggregating interventions from multisector rather than single-sector interventions. Some of these multisector interventions include WASH plus agriculture, education plus agriculture, and family planning plus nutrition among other permutations. Combining WASH and agriculture, USAID and Florida International University began implementing the West African Water Supply, Sanitation and Hygiene Program (WA-WASH) from 2011 to 2017 in Burkina Faso, Ghana, and Niger (USAID West Africa, 2017). The programme addresses water, WASH, food security, climate change, and other cross-cutting issues. The WA-WASH programme constructed synergies between WASH interventions and USAID's Resilience in the Sahel Enhanced programme in Burkina Faso. Some of the impacts of the programme include improved drinking water access for 65,690 people across the three countries, latrine construction for about 8,100 households, and increased climate change adaptation capacity for about 5,657 farmers. Critical lessons drawn from the programme include the importance of empowering programme beneficiaries with the know-how to develop their plan of action, different contexts mean different things for self-sufficiency. For example, in Burkina Faso, where subsidies existed, it was found hard to push citizens to construct latrines, whereas beneficiaries from other countries constructed their latrines with ease (USAID West Africa, 2017). Spill over effects of the programme included the development of sector knowledge through WASH curriculum development at higher learning institutions and the emergence of new businesses based on water pump manufacturing and supply. Similarly to WA-WASH, several nutrition sensitive

sectors and programmes can also be integrated, for example agriculture and education, education and social protection, and others.

Despite the gains of the integration interventions during delivery, the complexity of such processes and subsequent monitoring and evaluation might hinder governments from implementing integrated interventions. A total integration leading to trans sectoral merging (Harris & Drimie, 2012) has complications that arise from blurring lines of budget, capacities, and roles (The World Bank, 2013a). Evidence from Kenya where agriculture and health programmes were integrated suggests increased complexity as expected from such integration, but it is nothing that prior adequate planning and continuous evaluation/adaption cannot mitigate (Cole et al, 2016). Integration can be done through the delineation of impact pathways to aid visualisation of sectoral outcomes and guide monitoring and evaluation of implementation. Indeed, one of the main gaps of all kinds of integration is the lack of implementation research and knowledge on what works, how best to integrate and what combination mix returns the maximum impact (Food and Nutrition Technical Assistance Project III Project (FANTA), 2017). It appears, with the recent practice of development of multisectoral nutrition plans, that most countries have pitched tents at ensuring that other sectors, besides health, alter its agenda to include nutrition while maintaining sectoral remits. This practice is in theory mainstreaming of nutrition into the agenda, visions, and actions. During implementation integration comes with complexity that needs to be addressed before inception for maximum advantage (Garrett, Natalicchio & IFPRI, 2011)

5.2.2 Use of nutrition outcomes.

Another important factor that can be employed in making programmes nutrition-sensitive is the inclusion of nutrition goals, indicators, and activities (Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013). This begins with the application of nutrition lens to the project design and theory-based pathway analysis (IFAD, 2015). Examples of programmes where nutrition goals have been measured and monitored exist mostly in agriculture. In Heifer International, interventions that monitored nutrition indicators alongside community development interventions, Miller et al (2014) showed these interventions had positive effects on children's weight, height, number of days sick, income, and ownership of animals, though these were only observed in lowland areas. Alaofè et al (2016) showed that the effect of irrigation installation increases vegetable and fruit production, consumption, and dietary diversity, these increases were mainly through direct consumption and increased income.

5.2.3 Women empowerment

Women's nutritional, financial and overall empowerment is a fundamental input for adequate nutritional status. Nutrition-sensitive programmes have a role to play in promoting women's nutritional status, social status, decision-making, and overall empowerment. The interaction of gender and agriculture, discussed in section 2.7.4, holds true here also. This could be done through interventions that are gender-sensitive and technologies that reduce women's workload. Socially set gender roles for different sexes differ and also vary by societies and in most places also interact with their biological roles (Oniang'o & Mukudi, 2002). With the social roles assigned to the genders, gender has a place in the interaction between the various sectors and nutrition, with the links between agriculture, health, and nutrition (IFPRI, 2010). Some of these interactions include the importance of adequate maternal and female nutritional status given the nutritional vulnerability, especially during pregnancy and lactation. Failure of this leads to drastic outcomes ranging from congenital hypothyroidism, and spina bifida (Victora et al, 2008). Food taboos are always found along the lines of gender roles and affect nutrition outcomes (Mbah, Olaoye & Busari, 2014). Gender sensitivity regarding income generating activities and spending on nutrition is also vital, taking into cognisance the disaggregation of activities by gender roles, and the alignment of household spending on nutrition. Studies have suggested the high spending on nutrition and health/food related resources by women (World Bank, 2007; Grantl, 2012). Some recommendations by FAO (2012) on being gender-sensitive include incorporating gender analysis, incorporating gender consideration at all levels, recognising gender as greater than targeting women or achieving gender parity. Other recommendations include promoting balanced distribution of household tasks between men and women, addressing gender consideration at all stages of an intervention, adapting local gender policies to local context, promoting gender-sensitive elements in multisectoral policies, support equal rights and access to employment, land and other resources, and advocating for equal representation of women and men (FAO, 2012).

5.2.4 Targeting

Key vulnerable groups to be targeted include clusters with highest malnutrition rates, vulnerable life group: under five children, pregnant and/or lactating women, and 1000 days (UNSCN & SUN, 2011), people in emergency, and conflict zones. Targeting nutrition-sensitive programmes also enable its benefits to accrue to marginalised or vulnerable populations. Targeting is also a contextualised innovative process which might work differently in different regions. UNICEF, for instance, has employed different contextual strategies to address the issue of reaching the excluded and

marginalised children who are exempt from early childhood education. These strategies vary significantly by country. In Albania, low-cost, informal preschool community centres were set up to provide early learning opportunities, knowledge on child growth among others (UNICEF, 2006). In Bangladesh, the multi-grade centre called para-centres serving children from preschool to the world (UNICEF, 2006). In Kenya, it was a community-based programme to support children under the age of five affected by HIV/AIDS using the community committee that helped identify children and provide education and income support (UNICEF, 2006). In Malawi, the early childhood development was integrated into the Community Integrated Management of Childhood Illness (C-IMCI), targeting the most impoverished 11 districts, using established community childcare centres ran by volunteers which addressed the health-related problems (UNICEF, 2006). In Peri-urban Yangon in Myanmar, the most disadvantaged children were targeted, the intervention was two-fold: firstly, three and four-year-olds were attached to the basic education schools. While support groups called 'mothers' circle' was established for children under three-year-old and their caregivers/mothers. The mothers' circle was provided with nutrition guidance, vitamin supplementation, deworming, toy-making, and suggestions for appropriate play (UNICEF, 2006). In Senegal, different approaches were employed by different NGOs, regions and government. Dakar Municipality, the Hann, Ngor and Yoff communities established the ORT-SEN multipurpose centres that provided three to six-year old pre-primary education, health monitoring and all kinds of development (UNICEF, 2006). The Dakar Municipality Ministry of Health, World Vision and an NGO ran the CRESP early learning programme that engages parents, especially women, on the initial consultation, care practices, weekly evaluation of progress, and alternative income for programmes (UNICEF, 2006). The positive deviance parent employed the positive deviance approach to promoting positive care practices (UNICEF, 2006). The importance of targeting is also accentuated in the association of parenting effects and children's cognitive development, where the effect is found to be larger in disadvantaged populations (Engle et al, 2011). These examples draw out the need to apply contextual interventions in the design and targeting of vulnerable groups.

5.2.5 Using nutrition-sensitive programmes as delivery platforms for nutrition-specific interventions.

As a way of improving nutrition-specific impact, improving access will help increase utilisation and coverage. These include linking BCC to agricultural and education programmes and integrating nutrition-specific interventions in nutrition-sensitive programmes. Within agricultural programmes, there are different ways in which nutrition has come to be linked with the programmes and interventions. First, the inclusion of nutrition of education. This can be in the form of training on the

importance of different or all macro or micronutrients (Jones & de Brauw, 2015; Schreinemachers, Patalagsa & Uddin, 2016), general nutrition training, for example training on essential nutrition actions (van den Bold et al, 2013; Olney et al, 2015; Osei et al, 2017), and IYCF BCC (Kumar et al, 2018). Secondly, the inclusion and assessment of nutrition outcomes such as micronutrient intake and body utilisation (De Brauw et al, 2015; Jones & de Brauw, 2015), knowledge, attitudes and practice (Jones & de Brauw, 2015), Anthropometry (Olney et al, 2015; Osei et al, 2017; Kumar et al, 2018), and dietary diversity (Olney et al, 2015; Reinbott et al, 2016) among others. Other sectors have also begun to deliver nutrition through sectoral interventions. This includes delivering nutrition education, IYCF and/or ante-natal care linkages with WASH (Cumming & Cairncross, 2016; Luby et al, 2018), ECD (Fernandez-Rao et al, 2014; Hamadani et al, 2014), and social protection interventions (Spray, 2016). Some nutrition BCC can be delivered through nutrition-sensitive interventions, thus increasing access thereto. Including males in the nutrition BCC is also vital, as recent findings from an RCT in Bangladesh has shown that such practice increased the husband's awareness and knowledge and explained nearly half of the programme impact for maternal supplement intake and one-quarter of the dietary diversity (Nguyen et al, 2018).

These examples are evidence of the different ways that nutrition-sensitive programmes can help deliver nutrition-specific interventions. The wide range of evidence and examples imply that there is not a clear-cut method on which components can be delivered. Research is currently emerging on the permutations and its impacts. One area that has been flooded recently is the impact of nutrition BCC in an agricultural intervention, a systematic review in this area would help aggregate the various data that has been published recently on nutrition BCC and agriculture.

5.2.6 Coverage

Coverage in this study is not strictly defined but can be understood as the increased spread or reach of a given intervention/programme. It can also be understood as scaling up successful or existing interventions. It could apply to dissemination, direct spread, replication, and expansion of a model (The World Bank, 2003). In Bangladesh, coverage and quality of nutrition interventions best-explained impact on nutrition outcomes (Nguyen et al, 2018). Donors and governments that implement programmes with high coverage and long-term stand a chance of influencing malnutrition more than low coverage and short-term interventions. Several points in scaling up/improved coverage include not losing sight of poor, marginalised population, understanding contextual factors, draw universalists lessons, balance contextualist and universalist approaches (The World Bank, 2003).

5.2.7 Intervention utilisation

In addition to coverage and having access to interventions, utilisation is vital in ensuring that beneficiaries benefit from the intervention. Having established that agriculture, social protection, WASH, and ECD can help deliver nutrition-specific interventions, it is also an excellent avenue to help improve utilisation of such interventions (Hoddinott, Ahmed & Roy, 2018). Prakash et al (2013) showed the importance of programme utilisation and intensity of such utilisation in a cross-sectional analysis of biobehavioural intervention for HIV/AIDS in South India. They found that while 95 percent of the population accessed the intervention, only about 63 percent used it intensively, which led to 5 percent reduction in Sexually Transmitted Infections and a 2 percent reduction in HIV prevalence.

5.2.8 Sustainability of the intervention

The aim of all programmes and interventions is to impact societal outcomes and to a large extent have a lifeline after the programme has ended. This is the embodiment of the concept of sustainability regarding nutrition interventions for both nutrition-sensitive and nutrition-specific interventions. Programmes do not necessarily have to last forever, but they do need to be sustainable to provide value for the investment made. Sustainability could include service delivery, capacity development or maintenance of impact. Post-end line sustainability (3 years) data collection of health and microfinance programmes in Kenya shows that practices learnt by the attendants were sustained (Coates et al, 2016). However, there was a decline in service delivery by community health workers as the exit strategy did not account for capacity motivation, resources and linkages. On the other hand, the microfinance model continued to be sustained with service delivery, utilisation and impact as implemented, due to an independent savings group that was formed before the end of the programme (Coates et al, 2016). In the same sustainability study in Bolivia, where WASH and income programmes were implemented, piped water and latrines continued to be maintained and sustained by user-fees, but the sanitation and hand washing practices were not sustained (Coates et al, 2016). With regards to the rural income intervention, fewer farmers still participated in producer association, mainly due to the lack of meeting quality standards (Coates et al, 2016). These findings buttress the need for consideration of sustainability of all activities of a programme, especially when such programmes are funded by the donor or are time-bound.

The review above has attempted to highlight the importance of some of the factors that are important for programmes to be considered nutrition-sensitive or having the potential to be nutrition-sensitive. Despite the importance of these few principles of nutrition-sensitivity, few nutrition-sensitive programmes consider these principles in the design of the programme. Few studies have reported the

assessment of nutrition-sensitivity in interventions, possibly given the lack of standard metrics for such assessments.

5.3 Justification for the study phase

There is an agreement on the need to scale up nutrition-specific interventions and increasing evidence based on nutrition-sensitive approaches for agriculture, social protection and other relevant policies to take account of its possible effect on nutrition. However, the application of nutrition-sensitivity in programme design by government and intervention designers are yet to be internalised.

This phase assessed the nutrition-sensitivity of programmes in the ministries of Agriculture, Education, Environment, and Water Resources and Social Welfare in the two study states. This assessment also evaluated the potential of the programmes to be nutrition-sensitive and finally highlight what is needed to improve the effectiveness of these sectors to deliver nutrition to the broader population.

5.4 Objectives

The objective of this chapter was to assess the nutrition-sensitivity and potential of programmes implemented in the ministries of Agriculture, Education, Environment, and Social Welfare, in Anambra and Kebbi states. This chapter and the next makeup Phase 2 of the dissertation, which seeks to assess the operational realities of nutrition-sensitive programmes in the states, based on the MNIA framework (Menon et al, 2011).

5.5 Methodology

5.5.1 Study design

The phase was qualitative in nature, it involved document reviewing of the contents and analysing the programme documents using the nutrition-sensitivity assessment checklist (Appendix 3) and the potential programme and platform checklist (Appendix 4). The nutrition-sensitivity assessment checklist contains 8 questions and each question is scored 1-point, maximum score possible is 8. The nutrition-sensitivity potential checklist has 6 question, each question can be score 1 or 0. The maximum scores for the checklist is 6 points.

5.5.2 Data collection

Data was collected using instruments and procedures described below:

a. Instruments

The instruments/checklists called ‘nutrition-sensitive’ and ‘potential to be nutrition-sensitive’ were developed from the literature on nutrition-sensitivity. *The Lancet* paper 2 described criteria that might be important for nutrition-sensitive interventions, it was from the argument that the following criteria were adopted (Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013). For the assessment on nutrition-sensitivity, the set of criteria in the Table 5.1 was used and the definitions adopted. Documents were thoroughly read, where of the criteria was met, a single score of (1) was assigned to the program. In the absence of documents, program leaders or managers were interviewed.

Table 5.1 Definitions of criteria used in the analysis of nutrition-sensitivity

	Criteria	Definition	Scoring Max - 8
Targeting.	Areas with high malnutrition.	Targeting concerning LGA identified with the presence of high malnutrition burden. In Anambra State, the LGAs with the highest burden of stunting are Anambra West, Ayamelum, Ogbaru, Anambra East, Awka North, Onitsha North, Dunukofia and Ihiala LGAs. In Kebbi State the LGAs with the highest burden of stunting are Maiyama, Suru, Kalgo, Bunza, Jega, Wasagu/Danko and Gwandu LGAs.	1/0
	Under-fives.	Targeting of under-fives or families with under five children.	1/0
	Pregnant and/or lactating women.	Targeting of pregnant and/or lactating women.	1/0
Are there activities that impact nutrition?	Are planned activities going to lead to a change in the nutritional status?	Efficacious interventions that impact nutrition. Availability of studies that show the efficacy of such programmes for nutrition	1/0

Women empowerment.	Does the programme promote women's nutritional, social, and overall empowerment?	Interventions that enhance either or all the nutritional, social, and overall status of women.	1/0
Delivery of nutrition-specific interventions or BCC.	Is the programme linked to health and nutrition services or any behavioural communication change?	The use of the programme as an avenue to stimulate demand for health/nutrition programmes or BCC.	1/0
Integration with other programmes.	Is the programme integrated with another programme?	The multisectoral nature of the programme to serve as an entry point for other programmes/interventions.	1/0
Nutrition indicators.	Does it include nutrition indicators for monitoring and evaluation?	Integration of nutrition goals and indicators.	1/0
Total			8

In addition to the current nutrition-sensitivity of a programme, the possible potential was also assessed. Here, the additional criteria such as utilisation, coverage, and sustainability were included. These criteria, while not entirely about nutrition-sensitivity, has the power to influence the impact of even the most nutrition-sensitive programmes. These criteria have also been used to assess the potential of platforms to deliver micronutrient interventions (Olney, Rawat & Ruel, 2012). To assess a programmes' potential to be nutrition-sensitive, the set of criteria in Table 5.2 was used, and the definitions adopted.

Table 5.2 Criteria employed in assessing nutrition sensitive potential

	Criteria	Definition	
Targeting.	Can the programme target under five-year olds and women?	The ability of the programme to target the vulnerable population, the LGA with the highest malnutrition, pregnant and/or lactating women and under-fives.	1/0
Efficacious intervention.	Are there known efficacious interventions through established pathways?	Established pathway in the literature through which the programme influences nutrition.	1/0
Implementation.	Is the programme implemented as planned?	Quality, fidelity and consistency of the implementation of the programme. Availability of trained staff, inputs/products/services that were required.	1/0
Utilisation.	Do the targeted population benefit from the programme?	Acceptance of the programme by beneficiaries evidenced by correct usage and duration of usage.	1/0
Coverage.	Does the programme have high coverage of the targeted population?	Achievement of high coverage by the programme of targeted interventions.	1/0
Sustainability.	Is the programme sustainable from the demand and supply side and political changes?	Are there demand/supply side issues that can affect the longevity of the programme? Would the ministry continue to deliver the programme? Would the beneficiaries continue to use or request the programme? Would the programme be affected by political changes such as a change of governor or commissioner?	1/0
Total			6

b. Data Collection Procedure

Document review was the primary technique of data collection. Programme documents were downloaded online (where available) or physical copies collected from the ministries. Information obtained was augmented by Key Informant Interviews (KII) in the absence of documents, while information from the website was included where available.

5.5.3 Approach to data analysis

For document analysis, the deductive thematic analysis was employed. This analytic framework helped identify implicit and explicit nutrition-sensitive ideas in the programme documents using the

checklists. A list of these programmes was made, the content was reviewed using the nutrition-sensitivity assessment and the potential programme checklists. Where the documents and programme website (if existing) did not provide answers to all the questions, a key informant interview was conducted using the checklists.

The document analysis categorised programmes using pre-determined criteria (Table 5.1). For the nutrition sensitivity, each programme was scored based on the checklist and the final scores were subsequently computed. The total programme scoring was divided into terciles. Programmes scoring 6 to 8 were classified as “nutrition-sensitive”, 3 to 5 as “averagely nutrition-sensitive” and 0 to 2 as “not nutrition-sensitive”. For the programming potential, each programme was evaluated to ascertain the potential of each platform to deliver nutrition goals effectively. Based on that, they were scored, and the final scores computed. The programme scores were divided into terciles, namely “5 to 6 as an excellent potential”, “3 to 4 as good potential” and “0 to 2 as no potential”.

5.5.4 Internal validity and reliability

The full audio recording of all interviews and full transcription ensured that no information was lost. Furthermore, rigour was enhanced using complementary data collection techniques, namely observation, where possible, and face-to-face interviews to confirm data obtained from interviews.

To ensure validity, a definition and description of all the checklist terms (Table 5.1 and Table 5.2) were done prior to data analysis and used to ensure common standards when assigning scores to the programmes. Also, the summary of each programme made was taken back to the programme managers or ministry staff for member checking to ensure that findings were valid. The additional use of observations are also a means of ensuring that findings are reliable.

5.5.5 Limitation of the study

The primary limitation was the unavailability of programme documents and in some other instances, inadequacy of the programme documents available to address the criteria set. Donor-funded programmes, primarily in the agricultural sector, had inception, mid-term review, and indicators of the programmes available online, but most programmes implemented wholly by the states without funders, neither had a description of activities, nor annual reports.

This unavailability of documents led the study to augment sources of data with informants and interviews. Using two different sources of information can lead to discrepancies given the recognised

possibility of interview bias, whereas documents are official stances. Furthermore, interviews are subjective.

The study has also not included the impact of the selected programmes on nutrition outcomes in the assessment, as that requires rigorous evaluation, and is outside the scope of this dissertation.

5.6 Results and interpretation

To report the results, firstly a succinct description of all the programmes is given, then the nutrition-sensitive and potential to be nutrition-sensitive results are presented. Numerous documents were collected from the different ministries in both states to analyse the nutrition-sensitivity of their programmes. Table 5.3 summarises the documents reviewed according to the ministries, the documents are listed in Appendix 5. The programmes' scores are presented in the results section, with the scoresheet attached as Appendix 6. Presence of programmes and activities differ in the ministries assessed in both states. The ministries of Agriculture and Education had programmes different from their routine daily duties, while the ministries of Social Welfare and Environment had programmes streamlined into their various departments. This is mostly dependent on factors such as particular interest from donors, the structure of the program, the availability of funding from foreign donors and interest of the federal or state governments. The results are presented as programmes in the ministries of Education and Agriculture and departments in the ministries of Environment and Social Welfare.

Table 5.3 Number of documents used in analysing the nutrition-sensitivity of programmes in Anambra and Kebbi states

	Agriculture	Education	WASH	Social protection
General documents	5	9	5	-
Websites	5	-	-	-
Kebbi state documents	9	1	4	1
Anambra state documents	6	2	2	1
Kebbi key informant interviews	3	2	4	3
Anambra key informant interviews	4	2	3	3

5.6.1 Programmes implemented in the Ministry of Agriculture, Kebbi State

Four main programmes are implemented in the Ministry of Agriculture, Kebbi State. It includes: IFAD: Climate Change Adaptation and Agribusiness Support Programme (CASP), Agricultural Transformation

Agenda Support Programme Phase 1 (ATASP), FADAMA III Additional Funding I (AF I), and Comprehensive Africa Rice Initiative (CARI).

- The goal of CASP is to reduce rural poverty, increase food security, and accelerate sustainable economic growth by reducing vulnerability for smallholder farmers, and particularly women and youth. The programme focuses on the following crops: cowpea, groundnut, soybean, millet, and sorghum (IFAD, 2013, 2017a, 2017b).
- ATASP-1 is comprised of three main components namely infrastructure development, commodity Value chain development and programme management. The ATASP focuses on rice, cassava, and sorghum. It is implemented in five other states in Nigeria asides Kebbi and Anambra States (AfDB, 2013). In Kebbi State, ATASP-1 is implemented in seven LGAs namely Argungu, Bagudu, Ngaski, Dandi, Birnin Kebbi, Suru, and Shanga {Key Informant 2 (KI)}.
- The goal of the FADAMA III project is to increase the incomes of the users of land and water resources on a sustainable basis. Specifically, the AF I aim to increase the income of users of land and water resources anchored on cassava, rice, sorghum, and horticulture crops. Thereafter the establishment of value chains in selected states with a comparative advantage and then linking them to an organised market is one of the main outcomes. The direct beneficiaries are the producer groups within the production clusters/sites in the catchment areas and other key players such as investors, public and private service providers, agro-dealers, and agro-processors (World Bank, 2013, 2016). There are five project components: capacity building, communications and information, small-scale community-owned infrastructure, advisory services and input support, support to the ADPs, research and on-farm demonstrations, asset acquisition for individual farmer groups, and project management, monitoring and evaluation. FADAMA III AF I's approach involves bottom-up, community development and value chain approach with a focus on cassava, rice, sorghum, and horticulture with export potential.
- CARI is a multi-country initiative with the primary aim to increase the competitiveness of small-scale African rice producers, millers, and other actors in the value chain (CARI & GIZ, 2014). They aim to achieve a lasting reduction of poverty in Nigeria, Ghana, Burkina Faso, and Tanzania. CARI operates under a matching fund mechanism. In Kebbi, they operate the Kebbi Rice Value Chain Development Initiative with the principal aim of addressing coordination failures, creating better linkages among rice value chain actors, and increasing the economic returns for all stakeholders (CARI & GIZ, 2015). CARI's activities operate along four intervention areas: (1) improved productivity and quality of paddy rice, (2) increased efficiency of local rice sourcing, processing and marketing, (3) improved access to financial services for all value chain actors, and (4) enabling environment at national and regional level including policy framework. Complementary interventions are also embarked on and focuses specifically to benefit women and youth (e.g. vegetable production).

5.6.2 Programmes implemented in the Ministry of Agriculture, Anambra State

There are four agricultural programmes in Anambra State, the programmes include SASAKAWA, IFAD Value Chain Development Programme (VCDP), FADAMA III Additional Financing I, and ATASP 1.

- SASAKAWA's current objectives are to enhance crop productivity, post-harvest handling, public-private partnership and market access, and human resource development. This is done by providing adequate support to farmers from needs-assessment made, developing post-harvest processors and value chain for different crops, and helping private seed and storage companies (KI 8). Their sub-projects in Anambra focuses mainly on fertiliser. This project is implemented in the following LGAs: Ayamelum, Anambra East, Oyi, Dunkofia, Anambra North, Ogbaru, Egwusigo, Ihiala, Orumba North, and Orumba South LGAs (KI 8).
- The IFAD VCDP programme is based in five (5) LGAs in the state: Ayamelum, Anambra East, Anambra West, Orumba North, and Awka North LGA (KI 9). The programme focuses on: (1) developing agricultural markets and increasing market access for smallholder farmers and small to medium-scale agro-processors, and (2) enhancing smallholder productivity and in effect increasing the volume and quality of marketable produce by strengthening farmers' organisations, as well as supporting smallholder production (IFAD, 2012, 2016).
- The objective of the Additional Financing (AF) for the Third National FADAMA Development Project for Nigeria is to increase the incomes for users of rural lands and water resources within the FADAMA zones. The additional financing focuses on improving farm productivity performance of clusters of farmers engaged in priority food staples namely rice, cassava, sorghum, and horticulture in six selected states with high potential. Under the AF, specific to the six participating states (Anambra, Enugu, Kano, Kogi, Lagos and Niger), changes are made to the intermediate indicators, to include state level and commodity specifics. They are also interested in attracting private investment in processing and milling, and other commercial aspects of agriculture around nucleus farms, with associated small-holder linkages such as out-grower schemes and contracting farming arrangements (World Bank, 2016).
- ATASP-1 has been described under Kebbi State in Section 5.6.1 above. Anambra State falls under the Adani-Omor zone of the programme. This programme is implemented in Orumba South, Ayamelum, and Ogbaru LGA (KI¹⁴ 4).
- HarvestPlus supports the development of biofortified crops and distribution to farmers in all the LGAs of the state. They also create demand for consumption of vitamin A cassava products such as cassava flour, *fufu*, and pies. The crop is the cassava, but they have also included iron beans (KI 7).

¹⁴ KI - Key Informant

5.6.3 Nutrition-sensitivity and potential in Ministry of Agriculture

The results reported were obtained by scoring each programme through the documents and interviews using the checklists, as defined in the methodology section. The nutrition-sensitivity score of both states is presented simultaneously followed by the potential to be nutrition-sensitive.

Table 5.4 Nutrition-sensitivity and potential scores in the Ministry of Agriculture in Anambra and Kebbi States

State	Programme	Nutrition sensitivity	Interpretation	Nutrition sensitivity potential	Interpretation
Anambra	IFAD VCDP	5	Average	6	Excellent nutrition-sensitive potential
	SASAKAWA	4	Average	6	
	HarvestPlus	5	Average	6	
	ATASP-1	5	Average	6	
	FADAMA	4	Average	6	
Kebbi	IFAD CASP	6	Nutrition-sensitive	6	
	ATASP -1	5	Average	6	
	FADAMA	4	Average	6	
	CARI	4	Average	6	

Nutrition-sensitive key:

6-8 Nutrition-sensitive

3-5 Averagely nutrition-sensitive

0-2 Not nutrition-sensitive

Nutrition-sensitivity potential key:

5-6 Excellent potential

3-4 Good potential

0-2 No potential

Agriculture platform is the most vibrant in promoting nutrition-sensitivity. In Anambra State, the agricultural programmes were averagely nutrition-sensitive. Some of the programmes such as HarvestPlus and IFAD VCDP incorporate nutrition goals and indicators from the outset. The agricultural programmes reviewed mostly recognise the importance of women and youth. The programmes implemented in both states are mostly concerned with increasing food production of staple crops such as cassava, potato, rice, and sorghum. The pathway through which they increase production is the discriminating factor, for example, while ATASP-1 focuses on technical assistance specifically farmers training (AfDB, 2013), IFAD VCDP develops value chain (IFAD, 2016). A characteristic unique feature is that they all have excellent implementation as evidenced by annual and in some cases biannual reports. None of the programmes in Anambra State targeted under-fives and pregnant and/or lactating mothers. Almost all the programmes were focusing on increasing income and crop

productivity. The exception being Harvestplus which invested heavily in nutrition education, processing of nutritious food, and the promotion of fortified crops (KI 7). The crops involved were cassava, rice, maize, sorghum, and horticulture crops by FADAMA. All the programmes have special consideration for women. Although no special mention was made of using the platform for nutrition education through external structures such as the Women in Agriculture department at the state Ministry of Agriculture, was responsible for nutrition education which is done by agricultural extension agents. All programmes had the same score of six in potential to be nutrition-sensitive.

In Kebbi State, as in Anambra State, under-fives and pregnant and/or lactating women are not targeted, despite all the programmes influencing nutrition. The IFAD CASP adopted a different (landscape) approach of community-based seed production and climate change adaptation (IFAD, 2017a). It is also the only programme in the state with diverse crop interest, investing value of crops like cowpea, groundnut, soybean, rice, sorghum, and millet. This is in addition to the approach of training, such as farmer field and business school that also exist in ATASP-1. The nutrition-sensitivity of agricultural programmes in Kebbi State are as follows: IFAD CASP was nutrition-sensitive, and ATASP-1, FADAMA-III and CARI were averagely nutrition-sensitive. These programmes also have a similar potential to be excellently nutrition sensitive.

To optimise the potential of the agricultural sector to deliver nutrition, the programmes need to create special consideration for families with under-fives and households led by women. Interventions also need to include other known agriculture-nutrition linkage pathways (asides increased income) such as dietary diversity through own food production. Notwithstanding the comment by Sibhatu and Qaim (2016) that recommendations for production diversity are misguided and income route better for farmers, the Nigerian scene appears to be flocked with mostly income-dependent interventions. The implications of all interventions focusing on few crops also mean that traditional crops would be more neglected in production, and at the table. Focusing on contexts can, in this scenario, help distinguish where production diversity or income-focused programmes might benefit farmers more (Ruel, Quisumbing & Balagamwala, 2018). Perhaps the way forward would be to refocus the agricultural sector and interventions to quality diets (GLOPAN, 2016), and interventions to utilise the true definitions of food security: food availability, food accessibility and utilisation in designing interventions. Indeed, access to dietary energy from non-staples had the most significant future potency to reduce child stunting, as seen in modelling data from 1970 to 2012 (Smith & Haddad, 2015). Keeping nutrition indicators in view will ground agricultural interventions design into understanding that while food availability is important, it did not feature in the top priorities for reducing malnutrition in SSA or South Asia (Smith & Haddad, 2015).

All the programmes were fully implemented and utilised and had excellent potential to influence the nutritional status in the communities. The concern was about exit strategies when the programmes ended, as numerous programmes in the country had ended and farmers' productivity declined. Most of the programmes were enacting exit strategies such as the Community Development Alliance of the IFAD VCDP that would bring producer, processors, and service providers together to ensure that contact continued when the programme has ended. The potential of all the programmes to be nutrition-sensitive was excellent. Like Anambra State, agricultural programmes in Kebbi State can do better at targeting under-fives households and pregnant and/or lactating women. Being implemented as planned and utilised profoundly they serve as a fertile ground to drive nutrition to the beneficiaries through existing pathways of income generation, but more through nutrition education and dietary diversity pathways.

5.6.4 Programmes in the Ministry of Education, Kebbi State

In the Ministry of Education, Kebbi State three programmes are implemented in addition to the routine duties of the Ministry. They include the Early Childhood Care Development Education, Secondary School Feeding, and Enhanced Feeding programmes.

- In 2004, the National Policy on Education, that established the Universal Basic Education, was revised to include pre-primary education arms for 3 to 5-year olds in all public primary schools in the country (NERDC, 2004). The objectives of the early childhood/pre-primary education as expounded in the NERDC (2004) includes: to effect a smooth home-to-school transition, prepare the child for primary level education, provide adequate care and supervision for the children in the absence of their parents, teach social norms, teach enquiry and creativity through the exploration of nature in the child, environment, art, music and playing with toys, develop a sense of cooperation and team spirit, learn good habits, especially good health habits, and teach the rudiments and foundation of learning through play.
- The secondary school feeding involves school feeding for all secondary schools (junior and secondary), where they are fed thrice a day for boarding students, while day students are fed once a day at breakfast (KI 9).
- Enhanced feeding occurs during the month of Ramadan. During this month, the state provides meat/egg for all students to help reduce the effect of fasting on them (KI 10).

5.6.5 Programmes implemented in the Ministry of Education, Anambra State

In the Ministry of Education Anambra State, three active programmes are currently implemented, it is the State Education Programme Investment Project for Nigeria (SEPIP), Home-Grown School Feeding (HGSF), and the Early Childhood Care Development Education.

- SEPIP is a world bank funded programme which began in 2013 and is expected to end in 2019. The objective of the programme is to support need-based teacher deployment, school-level management and accountability, and finally, to support the measurement of student learning in the state (Federal Ministry of Education, 2012). This is done through various strategies such as needs and subject based teachers' deployment, improving regular measurement of student achievement, strengthening school-based management committee's participation and capacity for supporting school management and accountability, and increased private sector partnership with a focus on employment and technical skills.
- The Federal Government of Nigeria reignited the HGSF programme in 2016. The vision was to universally provide a free, nutritional balanced hot meal once a day to pupils (primary 1 to 3) in all public primary schools in Nigeria, using local smallholder farm produce procurement. It is envisaged that implementing the HGSF would establish a safety net for the poor and eradicate malnutrition in school-age children, while stimulating the national agricultural economy (HGSF, 2016). It also aims to increase the enrolment of primary school children in Nigeria and reduce the current primary school dropout rates estimated to be 30 percent. It will also address the poor nutrition and health status of many children and improve learning outcomes. Also, it will improve local agricultural production by creating linkages to local agricultural production. Lastly, it is an opportunity to create jobs along the value chain and spiral a multiplier effect for economic growth and development.
- ECD education has been discussed in detail in Kebbi State (see section 5.6.3), and a similar programme is being implemented in Anambra State.

Table 5.5 Nutrition-sensitivity and potential scores of programmes in the Ministry of Education in Anambra and Kebbi States

State	Programme	Nutrition sensitivity	Interpretation	Nutrition sensitivity Potential	Interpretation
Anambra	ECD	6	Nutrition-sensitive	6	Excellent nutrition-sensitive potential
	SEPIP	5	Average	5	
	HGSF	3	Average	5	
Kebbi	ECD	6	Nutrition-sensitive	5	
	Enhanced School feeding	4	Average	6	
	Secondary School Feeding	4	Average	5	

In Anambra State, the ECD was nutrition-sensitive, while the School Feeding Programme and SEPIP were averagely nutrition-sensitive. All three programmes were executed in all public schools in Anambra State. Only ECD education targeted under-fives and none involved pregnant and/or lactating women. All programmes, when implemented, strictly had the potential to affect nutrition. None of the three (ECD, School Feeding, and SEPIP) programmes in Anambra State promoted women's nutritional status, social or overall empowerment immediately. All the programmes have links with health or nutrition or BCC. Only SEPIP was not integrated with any other programme or ministry. The education programmes in Anambra has excellent potential to be nutrition-sensitive. In Anambra, the ECD education and the HGSF had potential to target under-fives. ECD education currently focuses on that age group (NERDC, 2004), and the HGSF can be modified if funding allows for the inclusion of under-fives. All the programmes had established efficacious intervention pathways through which they influence nutritional status: ECD education through early stimulation and care, HGSF through the provision of needed nutrient for primary students, and SEPIP through improved quality of education that increases the earning capability of future parents (UNICEF & WHO, 2007; Alderman & Headey, 2017). All the programmes were implemented as planned, though the SEPIP had the strictest implementation, being a World Bank-funded project. The targeted population benefited from all the programmes, and they all had high coverage being in all the schools in the state. They were all sustainable and in demand. The sustainability of the HGSF through political changes remains uncertain as a similar programme (Home Grown School Feeding and Health Programme) had been started by former President Obasanjo in 2005, but only Osun State continued implementation after the pilot phase ended (PCD, 2014). The previous school feeding programme was launched at the behest of NEPAD, with support from the World Food Programme and other donors in Sub-Saharan Africa (WFP, 2013). In neighbouring Ghana where similar school feeding was initiated, the programme has continued though quality and quantity of food are reportedly low (Yendaw & Dayour, 2015).

In Kebbi State, ECD was nutrition-sensitive, while Secondary School feeding and Enhanced feeding was averagely nutrition-sensitive. All three programmes were implemented in all the LGAs in the state, but the ECD education was not available in all primary schools in the state. None of the programmes had activities that promoted women's status or empowerment.

In Kebbi State, the potential of the programmes to be nutrition-sensitive were excellent. Only the ECD education currently targets under-fives, but the secondary school feeding has the potential of creating employment for the most vulnerable women in the communities and currently doing so, while the enhanced feeding can be extended to ECD education. Regarding utilisation, all the programmes are implemented and utilised by the communities, though the ECD education do not exist in all the

primary schools in Kebbi State: however, it can do better regarding scaling up ECD education availability. All the programmes are wholly sustainable from demand-side, supply-side, and through political changes.

5.6.6 Programmes implemented in the Ministries of Environment and Water resources, Kebbi State

In both states, the WASH responsibilities are disintegrated into two ministries: the Ministry of Environment and the Ministry of Water Resources or its equivalent. In this ministry, the programmes are also aligned with departments. Thus, no separate programmatic lines exist unlike in education and agriculture. The programmes in the Ministry of Environment include Environmental Health, Forestry and Afforestation, Solid Minerals, and Environment.

- The environmental health programmes are domiciled at the Department of Environmental Health, which is the department in charge of all environmental health programmes in the state (Federal Ministry of Environment, 2005). Their responsibilities are mainly statutory. The department coordinates, supervises, monitors, and evaluates the execution and following of the programmes in all 21 LGAs of the state. These are: solid waste management, excreta and sewage management, food safety and sanitation, market/abattoir sanitation, sanitary inspection, house-to-house inspection of premises, water quality surveillance/monitoring/sampling, school sanitation, pest/vector control, fumigation/disinfection, management of urban drains, control of stray animals, disposal of the dead (abandoned dead bodies), hygiene education and promotion, occupational health and safety, communicable diseases control, building quality control, and investigation of sanitary complaints. Implementation teams include the LGA inspection and health officers.
- The Department of Forestry and Afforestation oversees all efforts to reduce the impact of climate change and encourage afforestation in the state. The forestry department focuses on the different uses that forest resources in the state can play, such as wood production and conservation, among others (KI 11).
- The programmes are executed by the Environmental Department and focuses on other environmental issues affecting gully erosion and control in Kebbi State (KI 12).
- The department of Solid Minerals oversees the large solid minerals deposits found in Kebbi State. They have the mandate of discovering the state, quantity, quality, and volume of solid minerals, and subsequently guide investments in the sector from this knowledge (K13).
- The primary responsibilities of the Ministry of Water Resources are building different water projects and the rehabilitation of existing water projects. They do this mainly by the construction of rural water borehole: handpump or motorised, and distribution. The list of water projects executed by the present administration obtained from the Ministry of Water Resources shows substantial water projects constructed/repaired since the onset of the current administration (KI 14).

5.6.7 Programmes implemented in The Ministries of Environment and Department of water, Ministry of Power and Domestic Water, Anambra State

The WASH programmes are aligned with the different departments in Anambra State: Ecology, Environmental Health, and Forestry and Afforestation.

- Anambra State is classified as one of the most erosion-prone states in the country, in respect to that, the Department of Ecology which is similar to the department of Environment in Kebbi State addresses everything that is related to erosion.
- The departments of Forestry and Environmental Health in Anambra State are the same as the departments of same names in Kebbi State and details of the objectives of the departments are as described under Kebbi State (see section 5.6.5).
- Issues concerning water in Anambra State are handled by a department domiciled at the Ministry of Power and Domestic Water: Department of Water. Their interventions here include building boreholes and constructing water according to the needs of the population. The department just concluded a European Union and UNICEF funded Water Supply Sanitation Sector Reform programme II (NPC & EU, 2015). This programme helped the department in the drafting of the water law, establishing the WASH committee (WASHcom), creation of agencies (in the case of Small-Town Water Board), and proposed the sale of the urban water board (Anambra State water board).

The nutrition-sensitive analysis is presented in

Table 5.6.

Table 5.6 Nutrition-sensitivity and potential scores of the WASH programmes in Anambra and Kebbi states

State	Programme	Nutrition sensitivity	Interpretation	Nutrition sensitivity Potential	Interpretation
Anambra	Water Resources	4	Average	4	Good nutrition-sensitivity potential
	Environmental Health	5	Average	3	
	Ecology	3	Average	3	
	Forestry	3	Average	3	
Kebbi	Water Resources	4	Average	4	No nutrition-sensitive potential
	Environmental Health	6	Nutrition-sensitive	4	
	Forestry and afforestation	6	Nutrition-sensitive	3	
	Environment	4	Average	1	
	Solid minerals	4	Average	2	

For nutrition-sensitivity, the Environmental Health, Ecology, Forestry and Water programmes in the WASH sector in Anambra State were averagely nutrition-sensitive. Given the nature of the WASH programmes (Environmental Health, Ecology, Forestry and Water) they did not target children or women, or a given geographical region. They all directly or indirectly influenced nutritional status and had proven pathways through which they influenced nutrition. Access to a clean environment and water could lead to a significant reduction in diarrhoea incidences and infections in children (Dangour et al, 2013), while curbing erosion had an impact on overall soil quality (Lal, 2009), and thus food production. On the other hand agroforestry contributed to agrobiodiversity in the states (Dawson et al, 2013). None of the programmes currently involved activities that promoted women's nutritional, social status or overall empowerment. All the existing programmes were linked to BCC except the Forestry programmes. Also, the Environmental Health and Water programmes were integrated with other sectors.

In Kebbi State, the nutrition sensitivity score for Environmental Health, Forestry and Afforestation, Environment, Solid Minerals and Water was average, while the potential of nutrition-sensitivity was good to no potential. Similar to Anambra State, no geographical, gender or age range focuses on the implementation of programmes in Kebbi State. The state had a particular concern on the abolishment of deforestation as most of the state's population depends on wood for cooking fuel (KI 12). All the

programmes employed Information Education and Communication (IEC) for BCC, except the Solid Minerals programme.

The potential to be nutrition-sensitive for programmes under the Ministry of Environment in Anambra State were good. In Anambra State, the opportunity exists for the Environmental Health and Forestry programmes to target under-fives and women respectively. The National Policy on Environmental Sanitation (2006) already explained the importance of premises inspection which the Environmental Health needs to implement in clusters where under-fives live diligently. On the other hand, the role of forestry in dietary diversity is vital for nutrition, and women can be employed in the agroforestry intercropping with food crops for nutrition and income generation (Dawson et al, 2013). Amongst all the programmes, only the water-related activities had some degree of implementation and all-around sustainability. This implementation was mainly provided by institutions responsible for water for small towns, rural communities, the sale of public assets and the registration of independent water suppliers. Lack of resources which affected the implementation of Environmental Health, Forestry and Ecology services meant that they lacked supply-side sustainability.

In summary, in Kebbi State, Environmental Health, Forestry and Afforestation and Water, had good potential to be nutrition-sensitive, while Solid Minerals and Environment had no potential. In Kebbi an additional department is added in this section: the Solid Minerals programmes. This Department of Solid Minerals and that of Forestry and Afforestation (as it is known in Kebbi State) have the potential to target women. Activities of the Department of Solid Minerals delivers through the current formation of women mining cooperation, and the Department of Forestry and Afforestation through investing in forest food and agroforestry as a means of livelihood for the women. The small mining cooperatives have the potential to improve the income generation of these women though the implementation is subpar and erratic (Key Informant). The departments have different coverage, with the Water and Forestry programme having the best coverage, while Environmental Health has limited coverage.

5.6.8 Programmes implemented in the Ministry of Women Affairs and Social Development, Kebbi State

The Ministry of Women Affairs and Social Development in Kebbi is in charge of Social Protection related issues in the state. The ministry has three central departments for routine duties: Department of Child Development, Women Affairs, and Social Welfare.

- The Department of Child Development focuses on the celebration of children's parliament, Day of the African child, and in conjunction with the Kebbi State the Agency for Control of HIV/AIDS, executed a

World Bank project that has just rounded up. Project activities included household economic strengthening of Orphan and Vulnerable Children (OVC) and their caregivers through financial support for OVCs, training caregivers on vocations such as plumbing, tailoring, bed making, and providing support after the training. They also provided educational support to the OVCs such as school uniforms, reading/writing material, and school sandals (KI 15). Despite the activities of the department, the state is yet to pass the child rights law.

- The department of Women Affairs organises a six-month skills acquisition training on knitting, tailoring, and computer training for women and unemployed youth at the Ministry's secretariat or the various LGA headquarters (KI 16). During this training, family health tips are taught once a week, and at the end of the training, they are provided with take-off grants. Currently, the Federal Ministry of Women Affairs is re-activating women development centres and have supplied new machinery for this reactivation. This equipment has been distributed to one centre in each of the three senatorial zones: Gwandu, Suru Dakingari, and Tawuri. The Federal Ministry of Women Affairs in conjunction with the Industrial Training Fund is also carrying out training programmes for the youth.
- Department of Social Welfare focuses mainly on the following: (1) rehabilitation of disabled, which takes place at a home located at Argungu where weaving, leather, and foot mat production is learnt and practised, (2) mental rehabilitation home at Jega, where inmates are given medical treatment and positioned to acquire skills, (3) drugs rehabilitation at a home at Zulu, and (4) remand home for juveniles which accommodates children below the age of 18 and includes formal and informal education acquisition (KI 17).

5.6.9 Programmes implemented in the Ministry of Social Welfare, Anambra State

The activities of the Ministry are part of the four departments: Child Development, Social Welfare, Women Affairs and Rehabilitation.

- The Department of Child Development oversees children related issues in the ministry and state. Their programmes include anti-child abuse and neglect programme, control of children in conflict, a celebration of children's day, Christmas party, the day of the African child, children's parliament, and first baby of the year (KI 18).
- The Department of Women Affairs coordinates all the activities and programming regarding women in the ministry, such as the poverty eradication programme, celebrations such as international women's day, international rural women's day, day of the family, Anambra State mothers' summit, and women empowerment through programmes such as training and mobilisation of women, equipment purchases for women co-operatives, and skills acquisition through the different women development centres (WDC) in Anaku, Inoma, Oroma-etiti, Enugu-otu, Olumbanasa, and Agu-Awka (KI 19).
- The Department of Social Welfare oversees all the welfare related activities in the state. These include HIV/AIDS intervention project, poverty eradication and loans to the elderly, and the management of

welfare centre's grants to welfare organisations, foundations and NGOs. They also oversee the model motherless babies' home and day-care (KI 20).

- The Department of Rehabilitation focuses on the rehabilitation of the disabled and delinquents, they do this by focusing on operating special vocational rehabilitation centres in Nawfia, Aguleri, and Oba, and special activities for the disabled women and children and community-based rehabilitation projects (KI 20).

The nutrition-sensitivity analysis is given in Table 5.7

Table 5.7 Nutrition-sensitivity of Social welfare programmes

State	Programme	Nutrition-sensitivity	Interpretation	Nutrition-sensitivity Potential	Interpretation
Anambra	Dept. of Social Welfare.	5	Average	3	Good
	Dept. of Child Development.	3	Average	5	Excellent
	Dept. of Rehabilitation.	3	Average	4	Good
	Dept. of Women Affairs.	6	Nutrition-sensitive	4	Good
Kebbi	Dept. of Child Development.	5	Average	5	Excellent
	Dept. of Social Welfare.	3	Average	5	Excellent
	Dept. of Women Affairs.	6	Nutrition-sensitive	6	Excellent

The nutrition-sensitive score of the programmes under the Ministry is average for the Department of Social Welfare, excellent for the Department of Women Affairs, and average for the Department of Rehabilitation and the Department of Child Development. In Anambra State, amongst the programmes implemented in the Ministry of Social Welfare, only the Department of Child Development targeted children until the age of eighteen (18) years, while the Women Affairs and Social Welfare targeted women and the general population. They all had activities that could influence nutritional status, and all could promote women's status and empowerment, except the child development programmes. None of the programmes have integrated other programmes and only the skills acquisition of the Department of Women Affairs involved a BCC in the form of a health talk.

In Kebbi State, unlike in Anambra State, the Rehabilitation department does not exist, so the functions are merged with the Social Welfare department. The nutrition-sensitive score of programmes is average for the Department of Social Welfare, and excellent for the Department of Women Affairs and the Department of Child Development. The score of departments to be potentially nutrition -

sensitive here were good for child development, Women Affairs, Social Welfare, and Rehabilitation. The Social Welfare programme is the only one not linked to health/nutrition and BCC.

All the programmes under the Ministry of Social Welfare in Anambra State have the potential to target either the under-fives or women or both. Known efficacious interventions include the Department of Child Development's child's rights advocacy that promotes children's rights, the Department of Women Affairs' skills acquisition activity that creates an income avenue for youth and women, the motherless babies' homes of the Department of Social Welfare that houses vulnerable pregnant and/or lactating women, and OVC's and rehabilitation of people with special needs. The provision of adequate funds and human resources would strengthen these programmes to be fully implemented. The sub-optimal funding and implementation affect the supply-side sustainability, other than these concerns, the programmes are sustainable.

In Kebbi State the potential of programmes are excellent, they all could target under-fives, under-five families and women. Even though they have high implementation and coverage, expansion of the child development activities to other LGAs is vital in eliminating malnutrition in the state. Sustainability of the programme is also high, given the long-term demand, sustained supply amidst political changes. Table 5.6 shows the findings and potential sectoral improvement.

The composite scores of all the programmes for each sector's current nutrition-sensitivity are presented in Table 5.8 and the potential in Table 5.9. As seen in Table 5.8, none of the existing programmes were nutrition-sensitive, although most were averagely nutrition-sensitive and few nutrition-sensitive.

Table 5.8 Summary of nutrition-sensitivity

	Agriculture		Social Welfare		Education		WASH	
	Anambra State	Kebbi State	Anambra State	Kebbi State	Anambra State	Kebbi State	Anambra State	Kebbi state
Nutrition-sensitive (6-7)	-	1	1	1	1	1	-	2
Averagely nutrition-sensitive (5-3)	5	3	3	2	2	2	4	3
Not nutrition-sensitive (0-2)	-	-	-	-	-	-	-	-

Total number of programmes: 31

Table 5.8 above shows that most programs were averagely nutrition-sensitive. Variations between the two states were in agricultural and WASH sectors. In the agricultural sector, none of the programs in Anambra were nutrition-sensitive while one agricultural program was nutrition-sensitive in Kebbi State. For WASH programs, none in Anambra state was nutrition-sensitive while 2 out of 3 programs in Kebbi State were nutrition sensitive. Regarding potential (Table 5.9), all agricultural and education program had excellent potential to be nutrition-sensitive, while none of the WASH program had excellent potential to be nutrition-sensitive. For social welfare programs, all programs implemented in Kebbi state had excellent potential while only one of the social welfare programs implemented in Anambra state had excellent potential.

Table 5.9 Summary of nutrition-sensitivity potential

	Agriculture		Social Welfare		Education		WASH	
	Anambra State	Kebbi State	Anambra State	Kebbi State	Anambra State	Kebbi State	Anambra State	Kebbi State
Excellent Potential (6-5)	5	4	1	3	3	3	-	-
Good potential (4-3)	-	-	3	-	-	-	4	3
No potential (0-2)	-	-	-	-	-	-	-	2

There is evidence of average nutrition-sensitivity in the states with evidence of good to excellent potential.

5.7 Discussion of findings

This chapter set out to determine the nutrition-sensitivity of interventions executed in the four ministries in Anambra and Kebbi states using stated criteria. Most of the interventions (25) as currently executed has average nutrition sensitivity, while they have excellent (17) to good (11) potential for being nutrition-sensitive. This leads to the conclusion that all the sectors assessed (agriculture, education, social welfare, and WASH) had excellent potential for delivering nutrition to beneficiaries. Nutrition-sensitivity scholars have also found that these sectors also possess the potential of delivering micronutrient interventions (Olney, Rawat & Ruel, 2012).

Despite this potential, few of the programmes assessed were designed with nutrition-sensitive goals and indicators from the outset, similar to the evidence of Ruel, Alderman and Maternal and Child Nutrition Study Group (2013). These sectors and their programmes/interventions need to be better positioned to make a significant impact.

Key strengths of the sectors, as highlighted in Appendix 7, include excellent targeting of women, efficacious interventions that have been documented to address malnutrition. To achieve this potential all the programmes and sectors need to address all the weaknesses also highlighted in the same tables.

5.7.1 Targeting

The assessment shows that all components of targeting need to be strengthened across all programmes and sectors. It begins with malnutrition targeting, investing and upscaling programmes in the LGAs with the highest burden of malnutrition. While the LGA malnutrition burden has not been available before this study, employing it to target LGAs would ensure that those LGAs sustainably reduce their burden. In addition to targeting the malnutrition clusters, it is also vital to channel programmes in a way that benefits families with under-five children and pregnant and/or lactating women more, as these periods are one of the most vulnerable periods in the life course (Cusick & Georgieff, 2016; Petry et al, 2016). The right time and the right people ensure that efficacious interventions are effective (Olney, Rawat & Ruel, 2012). Kluge et al (2017) agree with the need for targeting, as targeting labour market interventions for disadvantaged youths delivers more gains.

5.7.2 Implementation of efficacious interventions

The second important aspect is the diversity of efficacious interventions implemented in each sector. In the agricultural sector in both states, the programmes lacked diversity in the pathways through

which they can influence malnutrition. According to Herforth and Harris (2014) agriculture-nutrition pathways distil three pathways through which agriculture can influence nutrition: own food production, dietary diversity, and women empowerment. Most of the agricultural programmes in the states are designed to increase income and women empowerment. Leaving out the own food production pathway (Herforth & Harris, 2014), forestry (Dawson et al, 2013), and linked interventions. Regarding specific crops, all the programmes except for HarvestPlus and CASP are targeting cassava, maize, and rice. Some include sorghum, millet, and vegetables. This is in line with FAOSTAT's (2010) calculation that 30 percent of all calories in the world come from maize, rice, and wheat. In developing countries such as Nigeria, it increases to about 60 percent and even close to 80 percent in the poorest countries. As much as 3 million tonnes of rice are being consumed in Nigeria annually (FAOSTAT, 2014). There is a strong bias of cereal policy, favouring rice and wheat (Bruinsma, 2002). For instance, currently Nigeria's agricultural policy of the green alternative alludes to focus crops being: rice, maize, wheat, soya beans, and tomatoes (FMARD, 2018). The intensive crop production system and vertical value chain building have implications for other crops, for non-communicable diseases, and climate change among others (WHO/FAO, 2003).

Dietary pattern increases overweight, and obesity risk (Yang et al, 2012; Mu et al, 2017) and monocropping leads to a loss of agrobiodiversity and varieties (Jacques & Jacques, 2012). The possible displacement of staple crops that earn more income vs. the traditional crops would ultimately lead to the gradual reduction in some farmers investing in the production of the traditional crops and thus gradual loss of value and ultimately lead to extinction. The multiple investments in the agricultural value chains in the study states and their focus on maize, rice, and cassava thus present a complex effect for nutrition. Downs and Fanzo (2016) correctly summarised that past value chain focuses of income generation must be changed.

Adequate planning is thus necessary to ensure that there is focus on the correct staples for significant calorie intake, attention is also paid to pulses, vegetables and fruits to ensure that the food system provides much-needed nutrients for the consumer. It might be necessary for value chains to create awareness that would drive the food system (Hawkes & Ruel, 2011). This would need greater investments that include driving demand for diverse and traditional foods and the value chain development of these foods. However, the operations and implementation are more cost-effective than a food system that feeds the double burden of malnutrition.

5.7.3 Programme implementation

Regarding implementation, only agriculture expressed near-perfect implementation, attributed mainly to the implementation team being almost institutionalised outside the State Ministry of Agriculture in the states. Where the offices operated from the State Ministry, the management reported to the programme funders directly, resulting in a different institutional arrangement within the ministry. Each programme has its implementation team beginning at the federal level down to that state level. By doing so they ensure stricter implementation and outcomes than programme activities handled by the state government's staff. While this study did not delve into factors responsible for the disparity, a possible explanation could be the difference in salary as motivation, staff training, and the organisational spirit among others. These programmes also had available programme descriptions, programme implementation manuals, and evaluation indicators available in print and online (World Bank, 2016; IFAD, 2017).

The strict implementation is the reason behind the success of donor programmes. The quality of implementation and service delivery ensures that the best designed programme delivers the much-needed interventions to the people. A more in-depth baseline analysis or implementation evaluation of possible implementation needs would ensure that the programmes in other sectors meet their various aims, these needs include staff motivation, in-service training, and programme equipment. This is more accurate for the Ministry of Environment, which has the lowest level of implementation in both states compared to the other ministries. Government institutions need to study processes involved in running interventions from agricultural programmes and maintain such quality as a model. Implementation as a concept will be fully delved into in Chapter 6 of this dissertation where the study has employed a process evaluation to assess the current implementation of selected programmes in the study states.

5.7.4 Integration of programmes

Another component of nutrition-sensitivity that was fundamentally lacking in all the programmes was the integration and utilisation of the programmes as a platform for improving access to nutrition-specific programmes and BCC (Document review and Key Informants Interview). The programmes need to be redesigned to ensure that it accommodates and fulfils its role as leading people to nutrition-specific interventions. Strategies and methods for each state and maybe even each LGA would differ depending on the context, but formative participatory research would ensure that active channels and methods are chosen (Strolla, Gans & Risica, 2005; Corey, 2011). The primary challenge here is that of converging nutrition-sensitive programmes so that one serves as entry point to the

other when and where needed (Jaenicke & Virchow, 2013). This is where the existing nutrition platforms can serve as a coordinator. Convergence comes with its challenges but plays a vital role in delivering interventions (Kim et al 2017). The challenge would be ensuring that beneficiaries of the various nutrition-sensitive programmes also benefit from nutrition-specific programmes or include BCC that would promote nutrition and health.

A clear example of where integration can help nutrition is in the case of forestry in the states. Forests has drastically been declining due to the collection of wood for timber sales. This is despite the role that forests play in providing wild foods; nutritious food to rural dwellers, or the role in the preservation of biodiversity (Muller et al, 2017). Thus, the cross-sectoral integration of the forestry department and nutrition would aid in unlocking the contribution of forests to food security and nutrition in the states. This integration would eventually lead to strategies such as secure forest tenure, community forestry, documentation of forest foods, agroforestry, context-adapted forest management methods, and rural enterprises based on forest foods. Prior studies have noted the importance of maternal nutrition knowledge in different parts of Nigeria (Omaghomi Jemide et al, 2016). This deficit influenced and correlated with poor child feeding practices. In this view, expanded nutrition BCC focusing on these themes can fill the gap in maternal nutrition knowledge. Currently, some of the agricultural programmes such as CASP, and FADAMA include BCC, participants of the skills acquisition programme would also benefit from such BCC.

5.7.5 Women Empowerment

In the programmes assessed, most agricultural programmes had special interventions for women. This ranged from a special percentage of funds reserved for them or more input incentives. The ECD programme in Kebbi State also had special health training for mothers, thereby empowering them with knowledge. The critical role that women play in the life course approach of malnutrition, elimination beginning from adolescent nutrition to 1000 days of life, makes their empowerment and promotion either through nutritional, financial or otherwise a given from a programme that aims to impact nutrition (Branca et al, 2015; Cusick & Georgieff, 2016; Petry et al, 2016). Scholars have shown, using cross-sectional data, that women empowerment measured with WEAI and some of the index's components were strongly associated with children's height for age (Cunningham et al, 2015). This stresses the importance of women empowerment which is being neglected by various programmes in the states. While income is always focused on, other forms of empowerment that impact child nutrition includes mental health (Rahman et al, 2004) or women organisation (Eklund, Imai & Felloni, 2007).

5.7.6 Programme coverage

Broad coverage is another factor needed for any impact to be seen. The agricultural programmes are hindered by funds and scope set out in the design of the programmes, so they do not cover all LGAs and communities. The concept of targeting becomes important, that while using the agricultural production system has a comparative advantage, attention is also paid to the communities and LGAs with the highest malnutrition and poverty burden who will benefit most from the programmes. Coverage is also crucial for programmes to equitably achieve the aims they need to currently ensure that, irrespective of location, all citizens have equal access to the opportunities held by the programmes. In the Ministry of Social Welfare, Anambra State, programmes are currently underutilised mainly because of unexplored potential of extending their services to the 21 LGAs of the state, given the importance of the services they provide. For instance, only three skills acquisition centres exist outside the Ministry's secretariat, scaling up will extend their services to others in the population. The impact is a function of effectiveness and coverage (Myatt & Guerrero, 2013).

5.7.7 Utilisation of programmes

In addition to the above, adequate utilisation by citizens is also required for nutrition-sensitive interventions. The gap between existence and utilisation needs to be filled for maximum impact to take effect in programmes such as ECD. In the same vein, continuous programme marketing and recruitment, where applicable, is important to increase utilisation and thus elongate the impact of the programmes (Saaka & Galaa, 2011). Programmes such as skills acquisition, ECD, and environmental health will benefit from aggressive recruitment and awareness creation. Similar aggressive recruitment has been advocated for in rural Rwanda where utilisation of growth monitoring services had plateaued (Leonard, Munyanshongore & Wilmet, 2010).

5.7.8 Programme sustainability

Lastly, ensuring that each programme is sustainable, through demand, supply, and political change is crucial. The challenge for donor-programmes has been sustainability after the lifespan of the programme has needed. To this end, exit strategies in agricultural programmes are now more important than ever before. The second challenge is to continually have demand and supply for the programme, as these go hand in hand with programme quality and perceived impact by the beneficiaries. Consistent quality of supply would significantly help stabilise the demand for the

programmes, and for environmental health activities in both states. Varying factors affect the sustainability of different programmes especially post-end line sustainability (Coates et al, 2016).

5.8 Conclusion

Nutrition-sensitive programmes in agriculture, social safety nets, early child development, and education have enormous potential but are yet to be scaled up, and coverage enhanced to increase the effectiveness of nutrition-specific actions. The criteria used in assessing nutrition-sensitivity in this chapter are worthwhile considering as criteria for measurement of nutrition-sensitivity and can contribute to finding a sustainable solution to malnutrition. Investments in nutrition-sensitive programmes can play a pivotal role in preventing the additional burden of undernutrition and impaired child development, which the up-scaling of nutrition-specific interventions cannot resolve on its own.

Chapter 6

6 PROGRAMME THEORY AND PROCESS EVALUATION OF SELECTED PROGRAMMES IN STUDY STATES

Abstract

There has been scant evidence on processes and pathways on how programmes impact nutrition outcomes. It is difficult to understand why effective programmes when scaled up and implemented by the government have failed to replicate impact on nutrition outcomes.

In this Phase 2b, a process evaluation was conducted, followed by programme theory analysis of four programmes in Kebbi and Anambra States. The programmes are: Agricultural Transformation Agenda Support Programme, Early Childhood Development Education, Environmental Sanitation, and Skills Acquisition. The programme operations were identified and programme implementation and inputs to be strengthened identified.

Qualitative methods were used to ascertain the programme impact pathways, and contexts and theories of the four programmes understudied.

Two pathways were identified in ATASP-1: Provision of rural infrastructure for higher quality of life, and commodity value chain through training. Five pathways were deciphered for the early childhood development programme, they include the provision of quality education, availability of qualified teachers, improved parental understanding and support for child care, increased awareness and significance of early childhood development, and lastly a pathway of growth monitoring and tracking. For the Environmental Sanitation, two pathways were identified: that of developing a healthy human habitation and improved citizen's attitude to environmental sanitation. Lastly, for the skills acquisition programme, improved livelihood through the acquisition of skills and that of improving nutrition and health knowledge were the two pathways identified

ATASP-1 had the greatest implementation and embodied lessons on implementation that can be adopted by other programmes such as the availability of an implementation manual, strict adherence to the manual, monitoring and evaluation indicators, and the release of mid-term and quarterly reports. Although programmes such as early childhood development and environmental sanitation in Kebbi State had recruitment strategies, more is needed to achieve great recruitment results in all the programmes evaluated.

6.1 Introduction

The core nutrition-specific interventions are vital in addressing undernutrition, especially when they are focused on the window of opportunity. However, the impact of nutrition-sensitive programming from agriculture, environmental sanitation, social protection, and education that target undernutrition has been limited in their development and implementation. Outlining practical operational strategies provides opportunities to further strengthen the nutritional impacts of these programmes. Programme Impact Pathway (PIP) is one of the best methods for analysing the impact of interventions (Kim et al, 2011). Furthermore, theory-driven PIP is one of the most effective ways to go beyond intention and interventions to measure impact (White, 2009b). The use of PIP is superior to the static input-output model because it gives insight into the causal mechanism of each programme (Kim et al, 2011). This chapter reports on the second part of Phase 2 on operational assessment.

6.2 Literature overview

The subsequent literature overview in this chapter focuses on why a theory-based programme impact pathway is vital for addressing malnutrition, examples of such pathways and critical lessons recorded from these experiences are explored.

6.2.1 Implementing science and nutrition

Numerous programmes have been launched in LMIC aiming to reduce the spate of malnutrition, especially among under-fives and women. Besides the efficacy of such programmes and interventions, implementation factors affect the success of these programmes (Theobald *et al.*, 2018). These factors include delivery, dose, reach and fidelity. The failure of many programmes to successfully reduce malnutrition or achieve their aim may have emanated from inefficient delivery of the intervention or other factors related to implementation (Peter, Tran & Taghreed, 2013) and the ability of a programme to be sustainable (Moore et al, 2017). This then drives down the need for adequate continuous monitoring of the programmes and periodic evaluation.

For funding agencies, evaluations help their understanding of the practical use of funds and success in achieving the expected results. For governments, evaluations help in assessing the success in achieving the objectives of the programmes (Moore *et al.*, 2014). For researchers, it helps in assessing effectiveness but also quality (Peters *et al.*, 2013). Programme implementers might need evaluation for all of the above. The type and approach of the evaluation would depend on the aim, whether the

evaluation is solely interested in the quality of implementation (process evaluation) or whether it is making intended impacts (impact evaluation).

6.2.2 Process evaluation through programme impact pathways

Process evaluation, also called operations research, helps understand the functioning of interventions by critically examining implementation, the mechanism of impact, and context (Moore et al, 2014). Implementation research delivers critic on how delivery was made, what was delivered, the dose, adaptation, and reach. The mechanism explores themes such as responses to and interactions with interventions, mediating factors, and unintended pathways or consequences. Lastly, the contextual analysis delves into contextual factors shaping theories of the intervention, the effect of context on the implementation, mechanisms and outcomes, and interaction of context and pathways which can enhance or block effects on outcome (Clarke, O'Sullivan and Barry, 2010; Edwards and Barker, 2014).

Most importantly, process evaluations enable researchers, implementers, and policymakers to explain why a programme succeeds or fails, and how much of the success can be replicated in a different setting if the outcome was dependent on intervention efficacy or implementation (Parry-Langdon *et al.*, 2003; Van Eerd *et al.*, 2017). Programme components evaluated include inputs, activities, mechanisms, people involved, output, outcome, and impacts (Moore *et al.*, 2012). These components form the programme impact pathway (PIP) diagrams which assists in the identification of the blockages and potential impact of the programme (Kim *et al.*, 2011).

A PIP is strengthened more by employing a theory of change (ToC) (Anderson, 2004; Rogers & Weiss, 2007; Funnell & Rogers, 2011). The ToC articulates assumptions about processes of change and specifies ways for intermediate outcomes through which the long-term change will occur (Anderson, 2004). Having no consensus protocol, procedure and process complicate the understanding of the ToC. Nevertheless, it is a continuous process and a much-needed tool for programmes. The product enhances visualisation and facilitates visibility of assumptions. The process of mapping out the theory entails collective critical thinking of activities (Raymer, no date).

Theory-based PIP and evaluations are evaluations backed by conceptual theories. They have been discussed in the evaluation literature for years (Weiss, 1997; Rogers & Weiss, 2007; Funnell & Rogers, 2011). Theory-based evaluation is especially relevant in a complicated and complex interaction where a single pathway of action does not exist (Dauphinee, 2015). Successful application of theory-based evaluation follows six main principles: mapping out programme theory, understand context, anticipate heterogeneity, rigorous evaluation using counterfactual, rigorous factual analysis, and the

use of mixed methods (White, 2009a, 2009b). In subsequent sections, examples of process evaluations in nutrition and related fields are explored.

6.2.3 Application of theory-based programme impact pathways and process evaluation nutrition

To illustrate the application of PIP in nutrition research and programming, two examples and their articles are reviewed to draw lessons from the exercise. Alive and Thrive (A&T) began in 2009 to combat global child undernutrition through appropriate infant and young child feeding (IYCF) practices (IFPRI, 2018). The initiative began with work in Vietnam, Ethiopia, and Bangladesh as first-phase countries to demonstrate proof-of-concept models such as interpersonal counselling, mass media campaigns, community mobilisation, and policy advocacy efforts. These interventions aimed to address the multiple behavioural, social, and policy barriers to optimal IYCF practices. Several articles emanating from the A&T employed the PIP. By mapping a pathway through which a BCC was implemented in Bangladesh influenced IYCF, a study found that factors such as family support, maternal and family perception, and the lack of resources among others (Avula et al, 2013) influenced successful implementation. Nguyen et al (2014) tested the proof-of-concept of applying social franchising to IYCF in Vietnam. Outlining input, process and outcome, they found that social franchising increases the IYCF counselling, particularly the structure and process of counselling.

Nguyen et al (2014) mapped the mechanism of action of interventions of a social franchise model using mixed methods outlining the theoretical causal links between A&T and IYCF. The study found that franchise utilisation increased by 35 percent but was still below the expected target. Mothers in the intervention area also had improved breastfeeding knowledge, beliefs, intentions, and practices. Challenges regarding utilisation and demand creation still had to be addressed for maximum intended impact to be achieved. Another study in Vietnam examined the effects of behaviour change interventions on breastfeeding (Nguyen et al, 2016). Using A&T data, multiple linear regression analyses and structural equation modelling were used to estimate effects. They concluded that combining different BCC interventions led to a more significant change in psychosocial factors which then positively influenced breastfeeding behaviours (Nguyen et al, 2016). Wealthier, better educated, younger and women of the Kinh ethnicity were found to be more willing to pay for nutrition counselling services and associated factors (Nguyen et al, 2015).

Dosage and recruitment are also vital to programme success. When assessing supply and demand-side factors related to IYCF services in Vietnam using Poisson regression on survey data, it was found that demand-generation strategies were vital factor for one-time use [Prevalence ratio – 3.0 (2.2 to 4.2)] and concluded that demand-creation strategies would help increase and sustain the use of nutrition services (Nguyen et al, 2016). Valuable lessons to be drawn from A&T mostly hinge on the

importance of implementation and process components on the success of an intervention. It goes further to prove that the lack of success in an intervention, extends beyond the efficacy of the intervention. Factors such as demand creation, a multiplicity of delivery channel, and husband participation are necessary for the expected impact of IYCF interventions.

The UNICEF programme evaluations also provide lessons for implementation. UNICEF implements numerous programmes throughout the world, and periodically evaluate those programmes. These evaluations have allowed them to make informed decisions and draw lessons from field experiences. In a review of 49 evaluations managed by UNICEF from 2009 to 2013, several themes such as relevance, effectiveness, efficiency, and recommendations were made (UNICEF, 2014b, 2014a). The review found that nutrition programmes covered addressed local needs and appropriately aligned it with national policies. The absence of causal analysis, the theory of change and baseline studies during the development phase weakens the appropriateness of programme design. Less than two-thirds of the nutrition programmes had reached, or were likely to reach, their targets. Factors that aided achievement of objectives included strong partnerships, adequate systems, capacity development, integration into a national system, and quick emergency response. The evaluation could not access efficiency as cost analysis were rarely made, and when made did not account for operational efficiency. The majority of the evaluation reported financial, technical, and institutional elements that would hinder programme sustainability, especially where national funding was lacking, and the programme hinged on donor support.

Many evaluations were concerned that programmes failed to overcome multi-sectoral integration challenges. Though if this integration happened from design to implementation, the programmes had stronger impacts. Efforts that built the national system and capacity led to more programme sustainability and continuity. UNICEF's focus on vulnerability mapping, showed that the inaccessibility of resources was poor as no programme took those factors into consideration. The review found that evaluations were sparse for the effectiveness of the components of nutrition programmes implemented. The programmes failed to compare outputs/outcomes and objectives while implementing.

Critical lessons can be drawn from UNICEF's reviews of their programme evaluation. Firstly, baseline data, the theory of change and casual analysis were important in programme design and evaluation. Secondly, achieving objectives were not exclusively dependent on programme design, other factors also play a role. Thirdly, operational dependent factors such as human resources, human resource allocation, institutional arrangements, and timing are potential contestants and must be assessed in addition to cost efficiency. Next, the sustainability of programmes is planned from conception and design. Factors to be considered include strong national structures, trained staff, proper integration

of programme components into domiciled ministry, and national ownership of programmes. Lastly, multi-sectoral integration delivers more significant results and benefits for nutrition, but has to be conscientiously planned from design, taking into consideration the many factors that can affect it, such as coordinating procedures and limited government capacity in multisectoral integration.

6.3 Objectives of the Phase (2b)

The objectives of this chapter add to that of the last chapter and Phase 2 in the methods which is to explore the operational realities in the programmes using the PIP. Specifically, this part of Phase 2 is to:

- a. Examine the perceived representation of the programme logic of nutrition-sensitive programmes,
- b. Elucidate falter points and the best intervention for achieving optimal nutrition outcomes.

6.4 Methodology

6.4.1 Evaluation approach and dimensions

The process evaluation in this study was structured around the ToC of the programmes following the theory-based approach to evaluation (Weiss, 1995; Rogers & Weiss, 2007). Dimensions were added to this ToC according to the UK MRC guidance on process evaluation (Moore et al, 2014) and others (Linnan & Steckler, 2002). The theory-based PIP were hypothesised to bring about change in the different sectors discussed in Chapter 5 and ultimately child malnutrition, as presented in Chapter 4. Table 6.1 describes the process evaluation dimensions definitions.

Table 6.1 Implementation dimensions and their definitions

Dimension	Definition
Context (influencing implementation).	Events and factors that may encourage or impede programme delivery or implementation, receipt, and uptake (Moore et al, 2014).
Recruitment.	Procedures used to attract programme recipients.
Fidelity.	The content, quality of delivery, and the extent to which the programme is being implemented as planned (Moore et al, 2014).
Reach.	The proportion of the target audience that participates in the programme (Linnan & Steckler, 2002).
Dose.	The quantity of the programme delivered or received by beneficiaries (Moore et al, 2014).

The methodology of this chapter has been discussed under the following sub-headings: study design, sample selection, data collection procedure, quality control and rigour, internal validity and reliability, and data analysis.

6.4.2 Study design

The design of this phase is qualitative, and it involved document review, interviews and site observations were employed in an in-depth ethnographic manner to identify the theories, pathways, contexts, and factors affecting these programmes.

6.4.3 Sample selection

Sampling took place in three stages of this phase, beginning with the choice of programmes, the selection of key informants to be interviewed, and finally sites to be visited. The programmes in this study were selected purposively considering the following:

- a. Programmes with high scores in the nutrition-sensitivity and potential-to-be nutrition-sensitive scoring system (see Chapter 5 for details),
- b. Programmes existing in both states to add a comparison of theories and identification of contextual differences.

The ATASP-1, ECD, Environmental Sanitation, and Skills Acquisition programmes were selected from the ministries of Agriculture, Education, Environment, and Social Welfare respectively.

This evaluation was based at state level, so for each programme, the critical informants involved at the state, LGA (if any) and community level (if applicable) were selected to participate and elicit their perception on the PIP. The communities for site visits were chosen by the state programme coordinators; the chosen programme sites were model sites. Efforts were made to ensure that all programme site visits were located in different LGAs or state capitals. Given that different programmes had varying names for staff positions and to ensure uniformity in identifying the cadre for interviewed participants, they were grouped into the three categories: programme administrator, programme implementers, and programme beneficiaries. See Figure 6.1.

- i. Programme administrators are the administrators, evaluators, managers or directors of the different programmes, usually at state level who direct and are not in the field themselves.
- ii. Programme implementers are the staff at the programme site, in charge of daily activities of the programmes.

- iii. Programme beneficiaries are people who have or are still benefiting from the programme in one way or another.

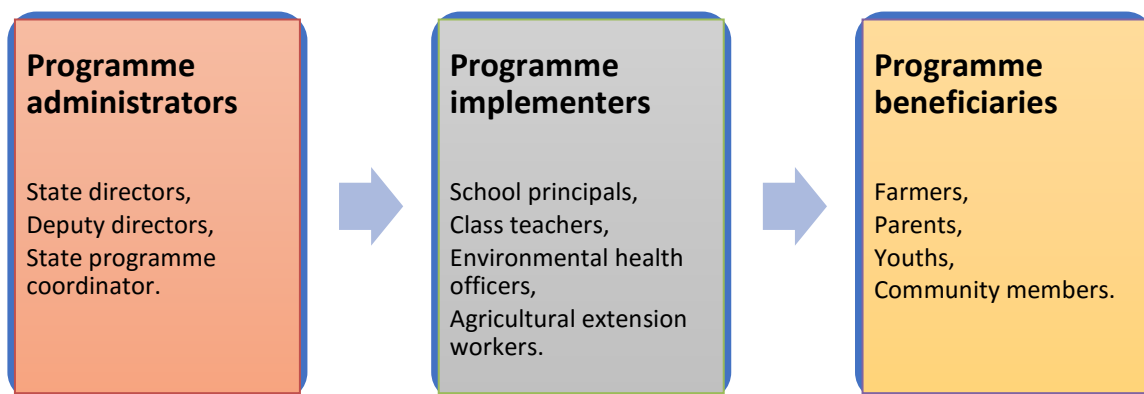


Figure 6.1: Hierarchy of study participants and categorisation.

6.4.4 Data collection methods

Three methods were employed in data collection: document review, interviews, and site observations.

Figure 6.2 summarises the data collection process:

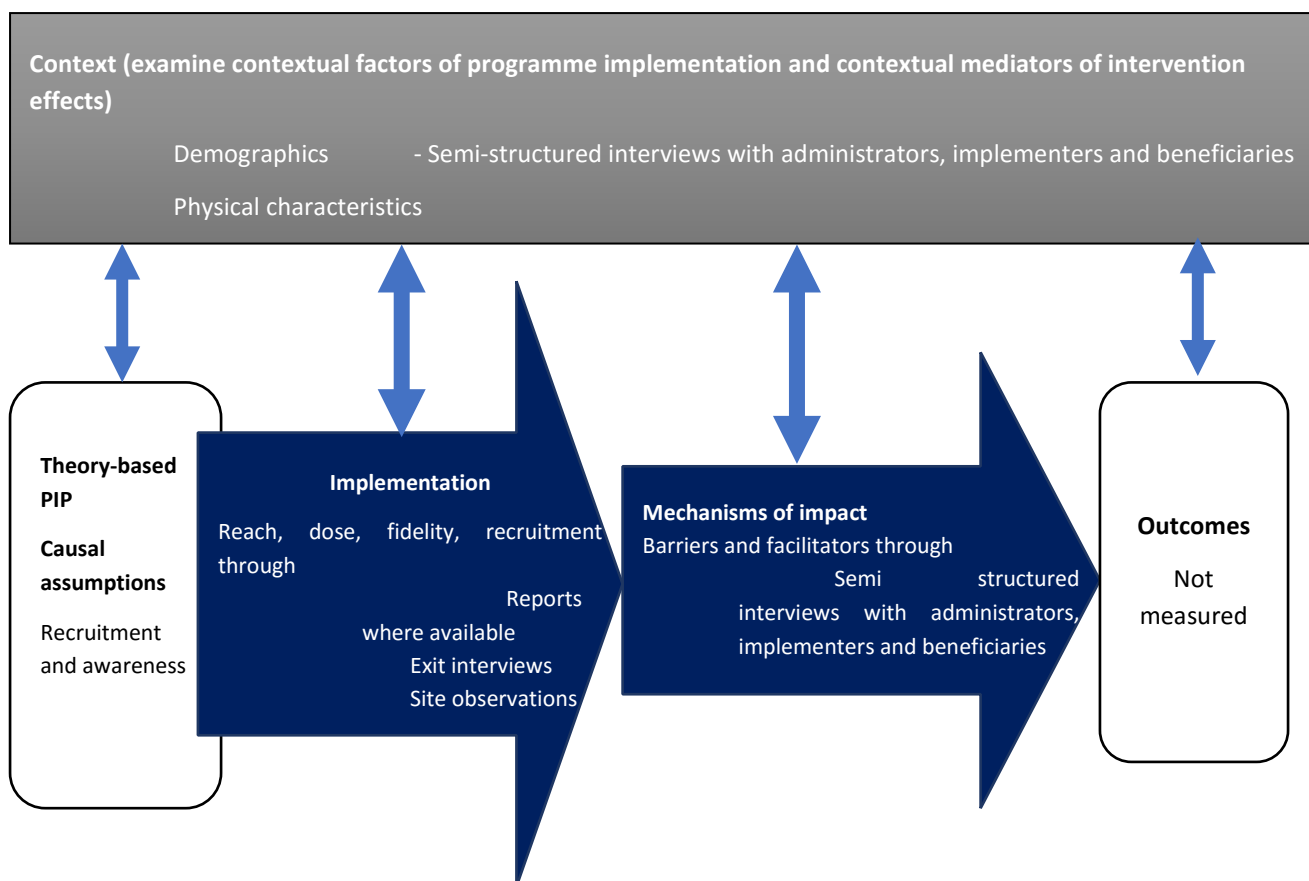


Figure 6.2: Data collection for process evaluation.

a. Document review

Programme documents that include a progress report, final evaluation reports, informational pamphlets or booklets, and instructional and educational material were obtained from the state and LGA offices during site visits and interviews. These documents were used to gather detailed information on the programme overview and the components of the programmes. Where they exist, these documents were used to draw a programme model or redraw to fit the researchers' perceived implementation. In the absence of one, the model draw is reported as perceived.

b. Semi-structured interviews

Fourteen interviews were conducted with the programme administrators involved in programme delivery at state and LGA level of the sectors. An in-depth interview guide (Appendix 8) was used to assess the training of workers, service delivery and monitoring, and evaluation at the grassroots. A total of eight interviews of programme implementers was conducted, four in each state. A minimum of two exit interviews was conducted at each site from purposely selected programme beneficiaries on the day of the visit. The exit interviews sort to determine the level of exposure to the various

programmes. All interviews were recorded and conducted at the convenience of the participants. The total sample size was 24 informants. Table 6.2 summarises the study participants and their affiliations.

Table 6.2 List of interview participants

Sector	Level	Anambra State	Kebbi State
		No of interviews	No of interviews
Agricultural Transformation Agenda Support Programme 1	Programme administrator	1	1
	Programme implementer	2	2
	Programme beneficiary	2	5
Early Childhood Development Education	Programme administrator	2	2
	Programme implementer	4	2
	Programme beneficiary	2	2
Environmental Sanitation	Programme administrator	2	2
	Programme Implementers	2	2
	Programme beneficiary	2	2
Skills Acquisition	Programme administrator	2	2
	Programme implementer	2	4
	Programme beneficiary	3	4

All actors and beneficiaries were questioned about the purpose of the programme and how the programme and its related activities work to achieve immediate results related to learning and knowledge. The intermediate results related to behaviour change and the final sector-specific outcomes, as well as facilitators and barriers to these outcomes, and factors that influenced programme implementation were also addressed. Given that local beneficiaries included rural community members who predominantly spoke Hausa and Igbo (native languages) and/or did not understand technical or programmatic terminology and some programme beneficiaries had limited English understanding, another version of the interview guide for local beneficiaries was developed, using simple, everyday words for questions related to programme elements based on the English version (Appendix 9). Back and front translation was also employed.

c. Observation during site visits

The site visit included site observations and assessments on site. The observation guide attached in Appendix 10 was used during the observations and the researcher wrote field notes with detailed descriptions of activities.

The observation visits were planned so that, where possible, essential programme events were observed. The main aim of the observation visit was to obtain a first-hand understanding and witness the implementation of a programme activity. Observations were recorded using field notes during the activity, and expanded notes were written immediately following each observation to describe the context and steps of the event, beneficiaries' responses, and the overall experience. Observation field notes were used to supplement the data collected through the interviews.

6.4.5 Data Analysis

First, the general programme models and result frameworks were reproduced based on programme documents to provide an overview of the programmes. Organizational schemas of programme actors were developed using programme documents and interview data. Then the ToC and PIP of the programmes were elaborated on, using interview responses supplemented with programme documents and observation field notes as shown in Table 6.3.

Table 6.3 Programme models and frameworks and primary data sources

Models/frameworks	Data source
Organisational schema/institutional arrangement.	Interviews/programme documents.
Theory of change/programme impact pathways.	Ethnographic observations and interviews.

Given that each programme was made up of many intervention strategies and activities, a single logical framework for each programme was constructed to capture the scope and logic of the activities implemented. Only the programme activities identified in the documents and interviews were included, rather than encompassing all possible ranges of activities from the programme documents.

The PIP of programme activities were also elaborated on, based on the interview data, with observation data used to facilitate the understanding of the action sequence to immediate outcomes. Although pathways may flow in various directions, data from the study permitted mapping of only unidirectional pathways.

Deductive thematic analysis was the guiding data analysis principle employed in analysis of implementation dimensions. Interview transcripts were coded with MAXQDA (qualitative data software) and by hand notation, according to predefined codes of programme elements (that is, rationale, assumptions, inputs, activity process, outputs, impact process, outcomes, facilitator, barrier, and adaptation) and emergent themes. For each programme activity, quotations by codes were diagrammed to connect the sequences between programme elements.

6.4.6 Limitations

For this part of Phase 2, the programmes are described in general terms and only specific aspects are highlighted for discussion. The results are mostly illustrative to discuss the main findings and methodologies. The findings from this phase do not call into question the impact or effectiveness of the programmes. A more rigorous evaluation of the effectiveness and efficacy of the programmes are beyond the scope of this thesis.

6.5 Results and discussion

The results of this chapter are presented according to Agriculture, Education, Environment and Social Welfare. For each programme, the PIP is presented with short descriptions. The implementation dimensions (fidelity, reach, recruitment, and context) of all the programmes follow. A description of the programmes has been given in Chapter 5 and will not be repeated in this chapter.

6.5.1 Programme impact pathways

a. ATASP-1

Figure 6.3 illustrates the PIP for ATASP-1.

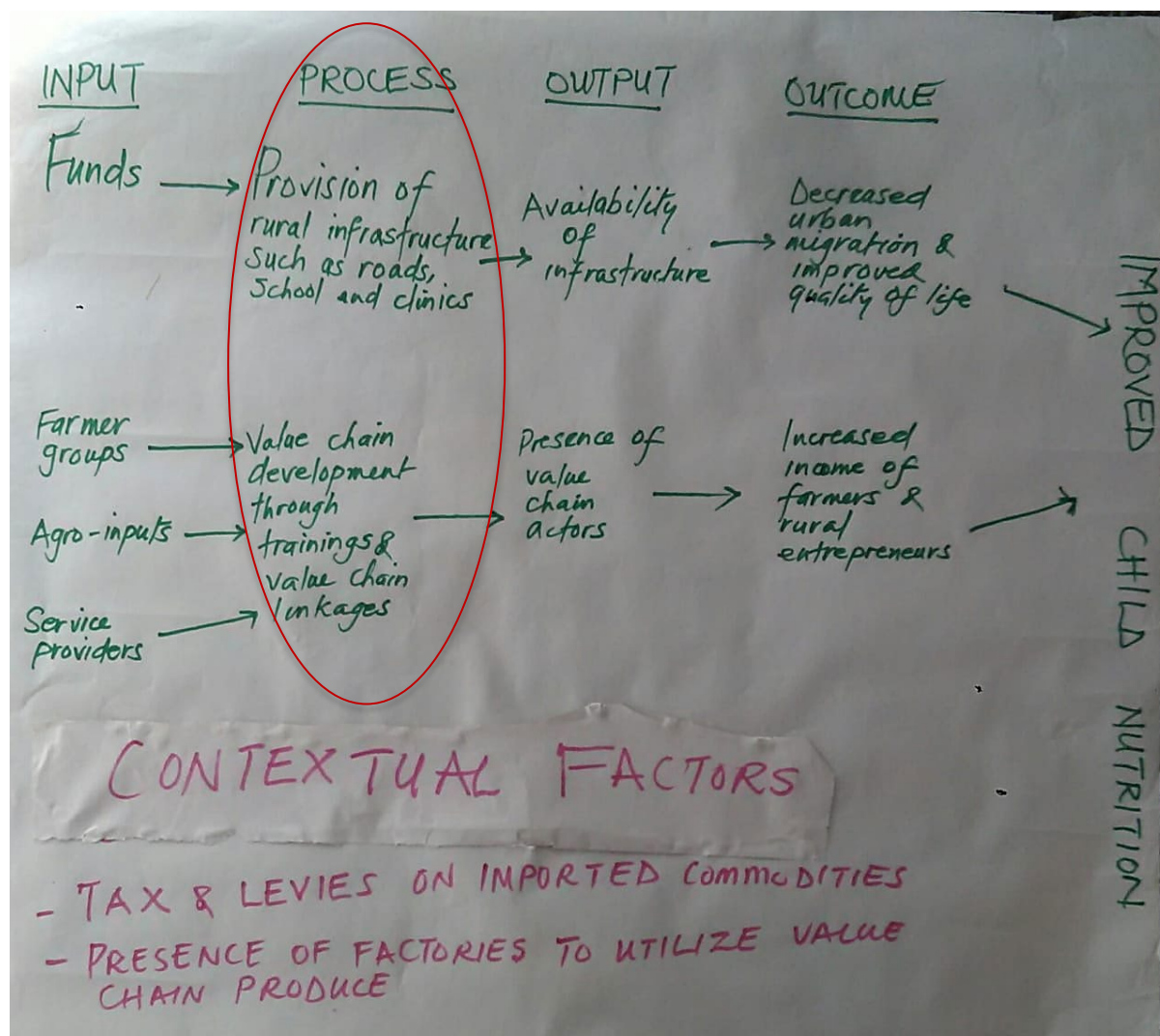


Figure 6.3: Hypothesized Theory-based Program Impact Pathway for Agricultural Transformation Agenda Support Program-1.

The hypothesized theory-based PIP of ATASP is shown in Figure 6.3 with the core process encircled. The ATASP-1 programme has a ToC envisaged at the beginning of the project. This study will adopt that existing ToC and adapt it. Two pathways have been hypothesised through which the ATASP programme influences job creation, food security, and impact on nutritional status. The first pathway is provision of rural infrastructure to support farmers' quality of life (Gandhi, 2007). This pathway begins with the establishment and/or renovation of schools, clinics, and roads for communities involved in ATASP, believing that the presence of this infrastructure will stop urban migration by the youth. The second pathway is that of the development of a value chain (Halewood & Surya, 2012). This value chain development begins with adequate training on best agronomic practices. Training on

agronomic practices has varying benefits which extends to diet diversification (Gondwe et al, 2017). Creating resonance with processors and off-takers is an essential factor in ensuring that farmers do not lose their investments for the year (FAO, 2015c).

b. ECD

The PIP for ECD is illustrated in Figure 6.4.

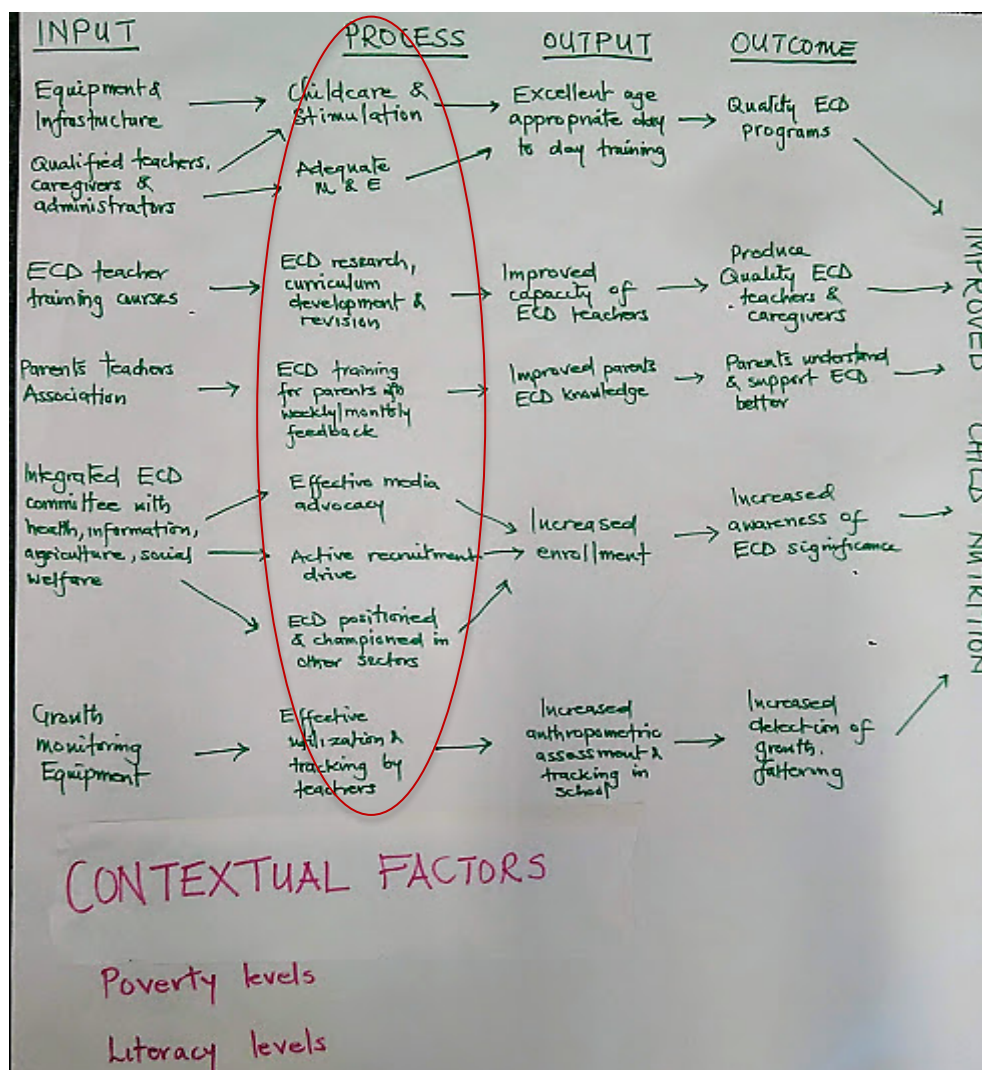


Figure 6.4: Theory-based Program Impact Pathway for Early Childhood Development education.

Five pathways are hypothesised through which ECD can influence nutrition as shown in Figure 6.4. They include the provision of quality ECD, the availability of qualified teachers, improved parental understanding, improved awareness through multisectoral linkages, and growth monitoring and tracking. The provision of quality ECD comes from excellent day-to-day age-appropriate training, and further influences cognition, development, and nutritional achievement in under-fives (Jones, 2007; Hamadani et al, 2014; Hurley, Yousafzai & Lopez-Boo, 2016). The main components of the provision of quality ECD are the availability of input such as staff (teachers and caregivers), infrastructure

(quality classrooms), and work materials (toys, curricula, and books) as shown in Figure 6.4 above (Department of Basic Education, Department of Social Development & UNICEF, 2010). The second pathway is that of qualified teachers. The relationship between teacher qualification and ECD care has been widely established (Manning et al, 2017). Training also includes in-service training, which improves the quality of education imparted (Wolf, Aber & Behrman Jere, 2017). Unavailability of ECD training at the Nigerian universities and institutions was a barrier to the availability of qualified teachers for ECD in both states.

The third presumed pathway is through the increased parental support, participation, and trainings. The programme components along this pathway utilise the parents and teachers' collective body in the school to deliver the best child care and growth monitoring knowledge, attitude, and practice (UNICEF & WHO, 2007) possible. Teacher-parent interaction improves children's school performance (Xu & Gulosino, 2006). The next pathway through which ECD influences nutrition is through multisectoral action and linkages, especially when it works to improve enrolment and access (Fawcett et al, 2010; The World Bank, 2013a; Poshan, 2014). The programme components that lie here include a shared vision of cross-cutting sectors to improve education and a vibrant state committee of food and nutrition. The last pathway is that of monitoring the growth of children attending ECD to ensure the timely detection of growth faltering (Ashworth, Shrimpton & Jamil, 2008). Components of growth and monitoring include taking measurements, tracking indicators, completing growth charts, discussing growth patterns with parents/caregivers, involving parents/caregivers in solutions related to growth faltering, counselling on infant and young child feeding, and identifying and following-up on children where growth faltering was detected.

c. Environmental Sanitation

The PIP for Environmental Sanitation is illustrated in Figure 6.5.

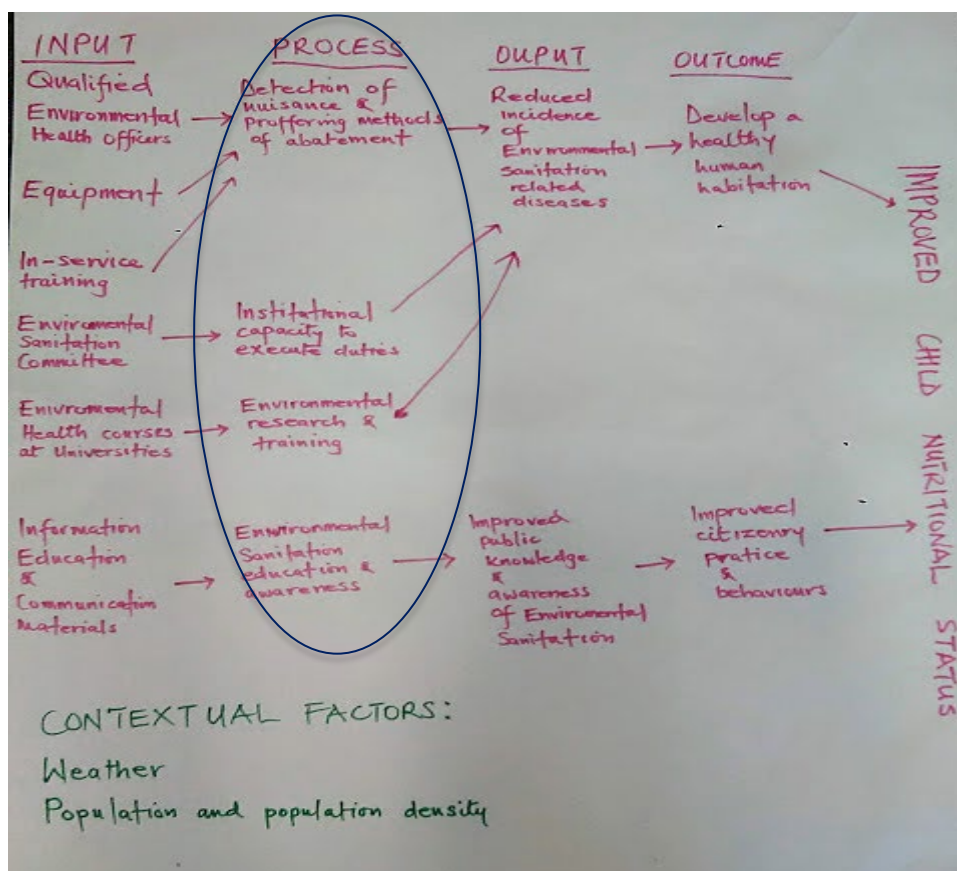


Figure 6.5: Theory-based Program Impact Pathway for Environmental Sanitation.

The primary pathway of the Environmental Sanitation Programme is to develop healthy human habitation leading to improved nutritional status (Ngure et al, 2014; Mbuya & Humphrey, 2016). Total sanitation improves child health and growth (Pickering & Alzua, 2016). The main components of this pathway are the detection of nuisances and proffering methods of abatement. An integrated behavioural model for WASH outlines habitual, individual, household, community, and structural levels that need to be considered in detection and abatement of nuisances to achieve total sanitation (Dreibelbis et al, 2013).

The second hypothesised pathway is that of the population's attitude towards Environmental Sanitation, which is related to their practices (Sayed, 2015; Mohd & Malik, 2017; Nahimana et al, 2017). The programme components in this pathway are the production of Information Education and Communication (IEC) materials for the state, citizens seeing the IEC on Environmental Sanitation, and improvement of the positive attitude towards Environmental Sanitation.

d. Skills Acquisition

The PIP for skills acquisition is illustrated in Figure 6.6.

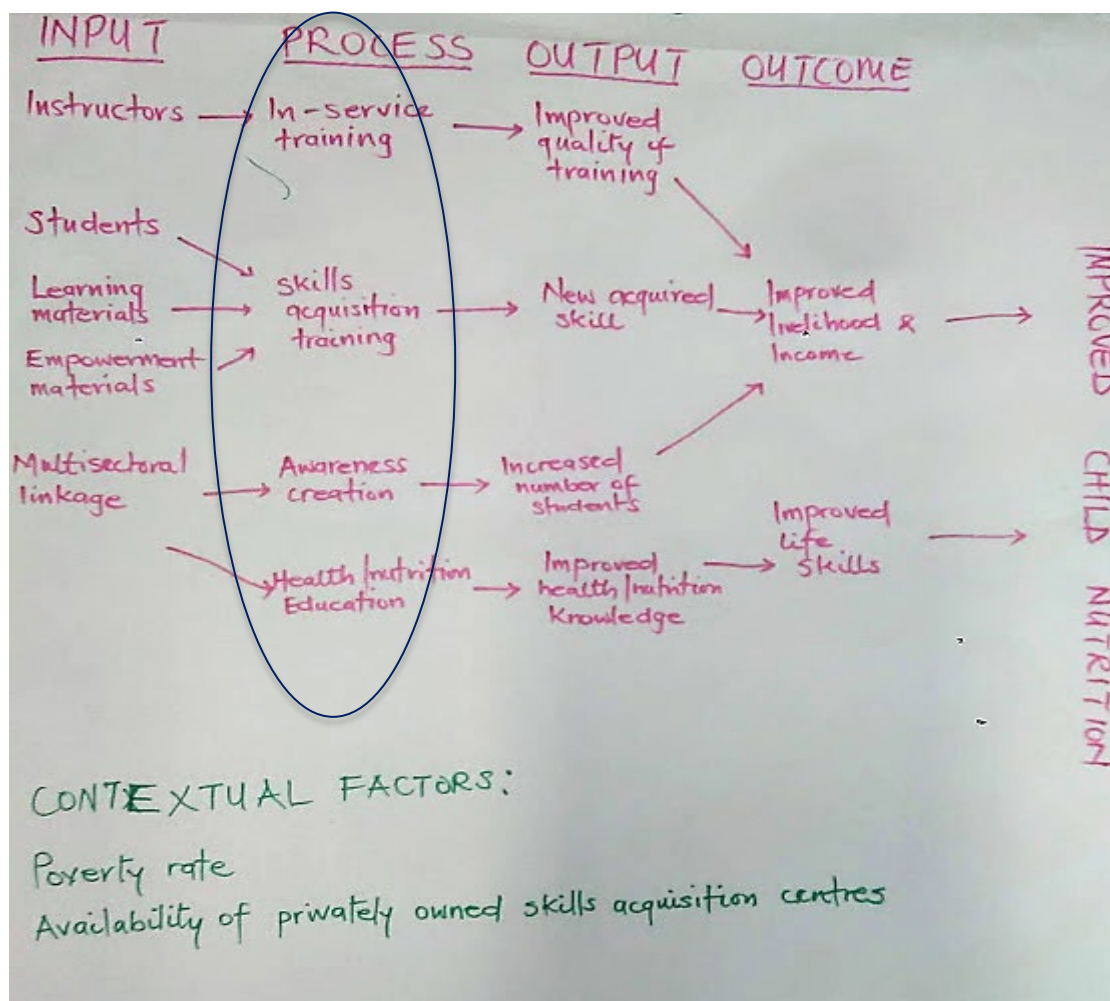


Figure 6.6: Theory-based Program Impact Pathway for Skills Acquisition.

For the Skills Acquisition, the study hypothesises two pathways. The primary pathway is that of improved income through skills acquisition (Kluve et al, 2017). The second, which hinges on the first, is the utilisation of the Skills Acquisition programme to empower recipients with nutrition education (Adato & Bassett, 2009; FAO, 2015b, 2015a).

6.5.2 Implementation dimensions

The results presented below are from the KII and site visits and they are of qualitative nature.

a. Reach: state wide programme reach vs limited reach

Interviews and notes from site observations suggest varying reach of programmes. Specific programmes such as ECD education in Anambra State, Environmental Sanitation in Kebbi State, and Skills Acquisition in Kebbi State were available in all LGAs of the corresponding states. They were

readily available to residents of the states equally. Other programmes were; however, not available throughout the state. These programmes include ECD education in Kebbi State, which was only available at selected primary schools. ATASP-1 Anambra and Kebbi only selected few LGAs at inception in the states, and few communities in the selected LGAs, the programme was thus only available to community members in the selected communities in that LGA. Environmental Sanitation and Skills Acquisition programmes in Anambra State were also not available throughout the entire state. The Skills Acquisition was stationed at the headquarters of the Ministry of Women Affairs and Social Development in the state capital Awka, students were expected to relocate to the state capital to attend the programme. Recently, about five new centres have been opened in three LGAs in the state. In total only one-fourth of the state has the programme available in their reach. The Environmental Sanitation Programme in Anambra State operate solely from Awka and though they are expected to cover the state that does not seem to be the case. This seems due to mainly institutional factors and will be discussed in detail under institutional arrangement. Reach and targeting may intersect where vulnerable groups are targeted, reach may be limited.

b. Dose delivered and received: longer doses vs shorter doses

Implementers reported on the number of doses delivered, and this was confirmed with the beneficiaries. For the ATASP-1, both states implemented the ATASP-1 according to the programme implementation manual and as such had a similar length of doses. The Agricultural agent duly followed up on the number of farmers training and whether the farmers encountered bottlenecks in the farming season. There was a substantial difference in doses in the Skills Acquisition Programmes between the two states. While Anambra States' programme was a one-year course, with courses stopping at the 10th month, followed by a two-month internship, Skills Acquisition in Kebbi State was a six-month course. In Anambra State, students could choose 2 to 3 courses which they attended during the course period. Students in Kebbi State registered for only one skill and concentrated on that throughout the period. The time duration of the ECD classes tends to be longer in Anambra. With some classes closing between 12 to 1 PM, while in Kebbi it was an average of 11 AM to 12 PM. In both states, the assumption is that skills alone are fundamental for earning a living without the full business skills. This assumption is yet to be evaluated. Environmental Sanitation teams in Kebbi State already had zones they covered and thus embarked on monitoring and evaluations weekly. The monitoring and evaluation team in Anambra had been redundant and only recently formed to embark on environmental monitoring.

c. *Fidelity: excellent implementation vs marginal implementation vs low implementation*

Fidelity was determined by comparing the planned activities outlined in the programme documents or programme administrators interviews with the delivered activities, as reported by programme implementers, programme beneficiaries, and observation notes. This comparison showed that the fidelity varied across programmes. In ATASP-1 the implementers strictly followed the programme implementation manual and continually measured progress through quarterly evaluation. The results of that evaluations are available in the quarterly reports.

“The ATASP programme implementation manual is like a bible to us” - (ATASP Administrator).

The ATASP 1 programme also had measurable expectations such as number of farmers reached, farmers yield etc. This led the implementers to strictly follow up on the beneficiaries to ensure that all progress was as expected.

“You know one has to follow and monitor and this farmer well, one mistake they will blame it on the programme or crops or the extension workers” - (ATASP Implementer).

In ECD in both states, fidelity was marginal. Implementers mostly cited lack of input such as lack of trained ECD teachers and caregivers. When asked what the more significant problem was, the most cited topic was the unavailability of teachers, the second cited topic was lack of teaching equipment.

“I can provide some things, others I try to draw to board, but there are ones that I cannot figure how to provide. It is not my job to provide these things. It is the job of the government” - (ECD Implementer).

“We have had to merge two classes together because we do not have a teacher for one of the classes” - (ECD Implementer).

In Anambra State, the lack of fidelity in some ECD components stemmed from lack of know-how, rather than unavailability of input. For instance, the growth monitoring equipment was available but not in use. Both the ECD administrators and implementers asserted that the children’s report cards had space for recording weight and height, but was not used.

Implementation fidelity in the Environmental Sanitation Programme was almost non-existent in Anambra State but marginal in Kebbi State. Both Environmental Sanitation administrators and implementers in Anambra State agreed that the programme has been dormant, mostly because of lack of equipment but also as a result of the hijack of institutional functions and outsourcing their duties.

“We are just trying to reignite our functions here. We have been doing nothing” - (Environmental Sanitation Administrator).

“Our responsibilities have been given out to contractors, so we just come to work and do nothing” - (Environmental Sanitation Implementer).

In Kebbi State, some form of implementation exists in the Environmental Sanitation Programme. The state is foremostly divided into zones and manned by zonal directors who report to the state administrators every month. Site observations also show the state team at work. Kebbi State also has a multisectoral task force on environmental sanitation as recommended by the national policy on environment 2006.

The Skills Acquisition Programmes in both states were being implemented as designed. Their fidelity was average, though they lacked adequate implementation input mostly equipment and personnel. Kebbi was more equipped, while Anambra lacked the staff to deliver the interventions and resorted to hiring short-term teachers.

d. Recruitment: no recruitment vs marginal recruitment

Findings of methods and number of attempts to recruit people for the programmes were mainly collected from interviews with the programme implementers and beneficiaries. Most programmes made no active effort to recruit participants. This includes programmes such as ECD in Anambra State,

“Everybody in the state knows about education. It is nothing new” - (ECD Implementer).

Another method of recruitment programme beneficiaries was by word of mouth. This approach cut across different programmes such as ECD in Anambra State and Skills Acquisition in both states.

“I heard from my neighbour who learnt sewing here, so I came and registered” - (Skills Acquisition Beneficiary).

“We do not make any awareness creation, but if I pass on the road and see children playing during school hours, I ask their mother to take them to school” - (ECD Implementer).

Some other programmes reported varying efforts at recruiting people into their programmes. These programmes used town meetings and public addresses. This includes Environmental Sanitation in Kebbi State, ECD in Kebbi State, and ATASP-1 in both states. Several ATASP-1 beneficiaries noted that they heard about the programme in their group meeting. The Kebbi State Government embarked on BCC radio adverts during the rainy season to create awareness on environmental sanitation and proper disposal of waste.

“We belong... farmers’ groups and they came to talk to us there” - (ATASP-1 Beneficiary).

“We go to recruitment campaigns. The commission goes to villages and LGAs and addresses them on the importance of registering their children in school” - (ECD administrator, Kebbi State).

“During the rainy season, there is always adverts on clearing the (gutters) drains. Our governor even does flagging off too” - (Environmental Sanitation beneficiary, Kebbi State).

e. Context

Contextual factors were mainly sort from physical and demographic characteristics, to interviewing responses. In addition to these, the interviews explored contextual factors that the participants felt could affect the implementation and outcome of implementation.

State literacy and educational levels. In 2018, only about 50 pupils entered the national examination to go to a federal government college (Olaleye, 2018). This is against the population of Lagos State where about 25,000 pupils were recorded. The percentage of male and female education level is low compared to that of Anambra State. Young female literacy in Anambra and Kebbi was 98.1 percent and 30.9 percent respectively, with a country average of 59.3 percent. Young male literacy level in Anambra and Kebbi State was 95.1 percent and 41.8 percent respectively, with a country average of 70.9 percent (NBS/UNICEF, 2017). The effect of low state literacy and educational levels influenced the adoption of ECD education in Kebbi State. On the opposite side, it meant citizens of Anambra State were more likely to enroll their children for ECD.

Geographical weather conditions. Kebbi experiences dry weather in the northern part of the country, with a larger land mass and smaller population size. With the higher temperature, waste tend to dry faster especially during rainy season. Anambra State, on the other hand, is situated in a small land mass, with a bigger population size and high humidity. This humid weather allows for the fast decay of waste products. The state, like others in the region, also has a more extended rainfall period. It is one of the most densely populated states in Nigeria, with a population density of 1,136.24 people per-km². This implies a massive waste turnover, as more people produce more waste.

Onitsha, the commercial city of Anambra State, has the highest fine particle matter of 10 micron and less (PM-10) among the cities in the world (WHO, 2016), thus, one of the dirtiest cities in the world

Poverty level. Kebbi State has one of the highest poverty levels in the country, and that seemed to influence the disposition of education and vice versa. Parents contributed N100 per term in Kebbi State, compared to about N1000 in Anambra State. Aligned with the low poverty level is also the literacy level in Kebbi State. An impact of this would be the parent’s ability to contribute funds when asked by the school authorities to augment what was received from the government.

In Anambra State, the voluntary nature or willingness of the citizens to contribute to infrastructure or service delivery comes into play in the school system, Environmental Sanitation, and the Skills Acquisition programmes. The schools have a school-based management committee and the parents agree to contribute an amount per session for school infrastructure and payment of certain teachers. Teachers paid by the parents' contribution were called Parents-Teachers Association (PTA) teachers. At the time of data collection, about three teachers were on the PTA payroll in the ECD section of the school. The PTA contributions had also purchased a television for the ECD pupils, they were already discussing fencing the school, which was unfenced and had taken long to actualise. This also applied to Environmental Sanitation in Anambra State. For instance, some streets have taken to hiring a waste truck to lift waste away from the street, and the high cost meant that they can only afford it once a month, sometimes twice a month. With a lower prevalence of poverty in Anambra State, the indigenes of the state are keener to patronise other private owned skills acquisition centres, where they pay more and believe that they will learn more in a shorter space of time. Poverty levels were supported by stunting prevalence of 18.4 and 60.6 percent in Anambra and Kebbi respectively (Chapter 4)

Institutional viability. There was a lack of political will and support for the Ministry of Environment's institutional structure. The use of the environmental sanitation as a means of revenue makes it easily hijackable by the government appointee leaving little or no studies for the staff of the ministry to perform.

Availability of infrastructure. In Anambra State, the presence of malted drinks and beer factories could mean better income if the sorghum introduction trial succeeds.

The women in Anambra State have gone ahead to form a seed transplanting group. This scenario is peculiar to Anambra State, and it was not expected of them regarding the implementation manual. The ATASP farmers in Anambra State are said to be the only ones that obtained the Anchors Borrowers Programme loan from the federal government in 2017.

Governmental bottlenecks. General assumptions of the ATASP-1 programme at inspection include the government's commitment to retain low taxes and levies on imported commodities and equipment. Disagreements between both parties have led to the unavailability of imported equipment such as vehicles. The lack of transportation has led to some minor challenges in the implementation of the ATASP programme.

6.6 Synthesis of programme evaluation

The process evaluation in this chapter was designed to enhance the understanding and provide detailed information of the selected nutrition-sensitive programmes, including contextual factors on why programmes may or may not achieve their outcomes and subsequently impact nutrition. Furthermore, this understanding draws out ways that the programmes can be strengthened and their potential to contribute to nutrition being maximised. This is vital, as the impact of small efficacy trials might dissipate when scaled up (Andrew et al, 2018) and managed by the government. Drawing attention to the importance of this small-scale study of the processes involved in governmental programmes, the provision of rigorous training, and the supervision of staff among other implementation actions and inputs, may contribute to the success of future programmes.

Overall the study found that although most programmes were being implemented, they had critical implementation challenges regarding programme delivery and design that could be impeding the impact. As shown in Table 6.4, there are numerous contextual factors affecting implementation and outcomes which suggest that verbatim replication of the successful interventions in states might prove challenging.

Table 6.4 Summary of process evaluation by programme

	ATASP 1		ECD		Environmental Sanitation		Skills acquisition	
	Anambra	Kebbi	Anambra	Kebbi	Anambra	Kebbi	Anambra	Kebbi
Reach	Low		High	Low	Low	High	Low	High
Dose	High		Marginal	Marginal	Low	Low	High	Low
Fidelity	High		Low	Low	Low	Marginal	Low	Low
Recruitment	Low		Low	Marginal	Low	Marginal	Low	Marginal

Implementation was less than desired for the Environmental Sanitation and Skills Acquisition programmes in both states, as measured by dose (to what extent did the intervention take place) and fidelity (adherence to protocol) dimensions. The only programme with excellent implementation in both states was the ATASP-1. Further probing highlights several factors likely to be responsible for the success includes: the availability of inception, mid-term and quarterly reports, an implementation manual that is strictly followed, adequate staff remuneration, and monitoring and evaluation indicators. Implementation fidelity greatly depends on organisational conditions (Hoekstra et al, 2017), showing the importance that change or implementation fidelity has to on an organisational

vision that is implemented within the confines of the programmes core strategies and input. This strategy seems to have worked for the ATASP-1 programme in both states but failed for other programmes, most visibly the Environmental Sanitation Programme. Data access and availability would also aid in increasing implementation fidelity. Past research has identified that data access improves fidelity (Kershner et al, 2014). This is also evident in the availability of quarterly and annual data from the ATASP-1 programme, unlike the other programmes.

Nonetheless, the Skills Acquisition Programme was successful in exposing the majority of students to some aspect(s) of health education such as IYCF and HIV/AIDS. Further examination shows that health education was an important component of the training. This supports the case for nutrition education to be delivered by the nutrition or health experts from the Ministry of Health or the State Nutrition Office. Examination of the individual implementation inputs needed for the programme shows that the improvements may need to begin with adequate input such as supplies for tutoring the students. All implementations in Environmental Sanitation lacked fidelity in both states, and in Kebbi State had some variation of dose.

For recruitment, various strategies were employed by some of the programmes. ECD in Kebbi State took active steps to spread information on their programme through public town meetings and similar events. The ATASP-1 were more targeted by going to existing farmers groups. The Environmental Sanitation in Kebbi State carried out rainy season radio jingles. The lack of BCC messages and events that signalled active recruitment to environmental sanitation might also be factor in the lack of total sanitation in Anambra State. The Skills Acquisition programme depend on word of mouth, which is likely not far-reaching in recruiting young people to the programme, especially those from poorer homes that need it the most. The study's findings are not unusual, as other studies have found gaps in programme delivery that affect effectiveness despite programme fidelity (Kim et al, 2015). Programme reach influences its effectiveness (van Assema et al, 2006), whereas public awareness campaigns lead to greater reach and even higher intermediate outcomes (Trieu et al, 2018). Innovative recruitment strategies that have been found to be successful include site-specific, organisational buy-in, flexibility, printed materials, and cross promotion on multiple platforms, among others (McCann et al, 2013; Fialkowski et al, 2016).

6.7 Programme implications

Given the complexity of nutrition-sensitive programmes, the process evaluation revealed ideas on how the programmes can be improved to better influence nutrition outcomes in the states. Based on

these findings, the following recommendations have been formulated for the programmes in the states and similar settings. The recommendations are tabulated in Appendix 11.

6.7.1 Agriculture

In Agriculture, promising areas investments that can deliver nutrition to the people include agricultural diversification, access to finance for farmers, agricultural research and development, fertiliser use, and the reduction of potential trade-offs of commercial agriculture (Fanzo et al, 2014). While ATASP-1 strictly focuses on certain crops that can be termed commercial, it has a strict and good implementation model that can be utilised to drive down nutrition strategies to beneficiaries. Room for improvement of programme implementation beneficial for both states, as identified in ATASP as shown in Table 6.3 above, revolved around the inclusion of male and female farmer groups in the nutrition training and seeking for opportunities for linkage of the ATASP programme to other programmes. Programme inputs needed by both states include expanded business and money management training, following up to ensure that the business training is in practice just as they are followed up on GAP practices. The unique religious nature of Kebbi State makes it essential that female extension agents be employed while improving access to a source of loans such as Anchor Borrowers or Bank of Industry loan. Anambra State needs to strengthen the focus of produce so that all farmers produce is bought by off-takers and nutrition training implemented for farmer groups. The continued existence of malnutrition in Africa has been attributed to multiple co-existing factors, one of which includes inappropriate dietary practices (Bain et al, 2013). Several lines of evidence suggest a high frequency of intake of the crops that are focused on. Senbanjo, Olayiwola and Afolabi (2016) reported a high intake of cereal and tubers and low intake of proteins, fruits, and vegetable both in urban and rural communities in Lagos State. This suggests consumption along the lines of availability or promotion in households, including under-fives.

Having established the role that agricultural interventions play in malnutrition elimination, one would expect that newer programmes would aim to be more nutrition-sensitive from the outset. This though is not obtainable as a higher number of agricultural programmes still do not state nutrition outcomes explicitly as a main goal or aim.

A new study by Danton and Titus (2018) list the different ways that nutrition can be improved through agriculture as increased access to diverse and nutritious foods. Encouraging income use for better diets, health and hygiene, recognising the central roles of women in nutrition and agriculture, creating demand for diverse and nutritious food, and the establishment of policies to support a broad view of nutrition (Danton & Titus, 2018).

6.7.2 Early Childhood Development Education

Some action points for the ECD education are the responsibility of the Universal Basic Education Commission, Federal Ministry of Education or legislature. They include consideration for a portion of the education trust fund to be allocated to the ECD programme in the country and administered via UBEC solely for ECD, establishment of early childhood development teacher training courses in the universities, colleges of education and teacher training schools, and funding research regarding ECD to generate contextual practices and results that might improve ECD in the country. Opportunities for ensuring that ECD education delivers adequate nutrition to pre-school children in Kebbi State begins with enrolment, which was weak and not aggressive given the history and reality of low literacy and educational achievements in the state. This enrolment drive, taking into consideration the role that traditional rulers play in that society evidenced by the utilisation of traditional rulers in polio, and other malnutrition campaigns, would begin in the communities. This can be achieved through an active LGA Integrated Early Childhood Committee as set out by the National Policy for Integrated Early Childhood Development. The active and continuous mobilisation is also important after the enrolment to ensure that compliance is high and drop-out low. There is need to ensure that ECD education is available in all primary schools in the state. When not available, community or health centre based ECD might be set up to complement. Contrarily, a heavily Muslim state like Kebbi might want to understudy the Madrasa Resource Early Childhood Programme (integrated Islamic and secular curricula) as has been implemented in East Africa to generate ideas on how an ECD education based on Muslim principles can help nurture academic skills and greater child development (Mwaura, Sylva & Malmberg, 2008). Recommendations from field experiences in Bangladesh also assert to the value of brief culturally relevant curriculum to be merged with the health sector (Hamadani et al, 2014). This would ensure that no child is left out from the opportunities that ECD education offer, especially with regards to nutrition. Research has consistently shown that more disadvantaged children benefit from ECD. Indeed, the most important promise of ECD education is its ability to deliver interventions that can curb social inequity from a younger age (Alatas et al, 2013), and thus it has been found to reduce differences in early learning outcomes across socio-economic status in the same village (Weiland & Yoshikawa, 2013) and as groups of varying advantages (UNESCO, 2009). By implication, the promise that ECD education has in Kebbi State is higher for children who were, at the time, not attending. That said, only a state-wide analysis of the profile of out-of-school pupils and quantitative and qualitative surveys on reasons for not being in school can help develop a strategy for addressing them. This is important as the profile of out-of-school varies due to even further different reason such as marginalisation, language-minority background (UNESCO, 2012), gender (Alatas et al, 2013) and rural areas.

In Anambra State, the case of ECD lies in strengthening the implementation and increasing the standards and quality of the education it provides. This begins with the provision of equipment and tools, increased caregivers to enable the children to access to quality play time, which will, in turn, increase their social skills, among others. This arm of quality increase is also accurate for Kebbi State. One of the promises of quality early childhood education draws on the impact it has on early enrolment for primary school, improved parents and caregivers' time use, child development outcomes, child growth and health, and even school enrolment of older siblings (Martinez & Naudeau, 2012). Incorporating parents' training into the ECD education in Anambra State, will help solidify the knowledge and skills the children are acquiring at school as parent training has been shown to be more effective than the quality of ECD education alone (Özler et al, 2018), perhaps it does this by improving three literacy domains at the home front: learning activities, parenting quality, and learning materials (Tamis-lemonda & Rodriguez, 2015).

Growth monitoring needs to be enshrined into the school system in both states, in Anambra where the height and weight are measured at the beginning of the term already, it has been taken further by converting the measurements to growth monitoring. A more accessible approach might be to ensure that each classroom has a MUAC tape and that the teacher measures her pupils monthly or termly, alerting the parents and health service of growth faltering in any child. The Nigerian SABER-ECD report also emphasises the need of multisectoral comprehensive child tracking systems across the numerous sectors. This will make robust administrative data available and reduce the dependence on survey data as currently exists (The World Bank, 2013c).

The lack of annual and midterm reports, including programme descriptions and policies highlighting ministry and department descriptions, affect the output of the state ministries and departments. It also means that they are not held accountable for their yearly outcome. It would be beneficial for programmes, ministries and agencies to draft and have indicators for measuring success or failure of their different activities. Measuring these indicators biannually or annually and releasing the reports if possible, would be beneficial to assess successes and failures of the respective departments. These indicators could serve as a monitoring and evaluation template for quality assurance purposes. ATASP-1 is the only programme that have both reports and indicators. The State Basic Education Board/Commission also have templets for quality assurance purposes, but stricter implementation is needed, backed by strategies on improving said situation. The Environmental Sanitation and Skills Acquisitions programmes neither have the indicators for measurement, nor need reports and they to develop, and utilise the evaluation and report writing. The internal programme monitoring, evaluation, feedback and adaptation loop is the most reliable feature necessary for ensuring that

available resources, however inadequate, are best utilised most innovatively for enhancing programme outcomes and delivering nutrition (Love, 1991; Rabiei et al, 2009).

The development of such reports and indicators as described above are an important indicator for the monitoring and policy implementation arm of the different ministries. Monitoring and quality assurance systems exist in education, agriculture, and even environment but are hardly utilised or the presence thereof in the Ministry of Welfare is unknown. Without adequate monitoring of all the programmes, sectors and contexts which show steady output, and impact on the outcome, are bound to fail. Furthermore, the development of sectoral monitoring tools, participatory development of monitoring tools and monitoring itself by the programme beneficiaries, implementers and administrators will increase shared ownership in the programme, reduce isolation and thus increase success (Gaventa, Creed & Morrissey, 1998; Kananura et al, 2017; Verbrugge et al, 2017).

6.7.3 Environmental Sanitation

There's a dearth of studies that have investigated how environmental sanitation affects nutrition. Most studies and surveys focus on how WASH restricts themselves to water quality, handwashing and food safety measures as evidenced by DHS surveys (ICF International, 2011). Although whatever microorganism is to be prevented from these strategies are foremostly found in the environment. WASH strategies that focus on environmental sanitation awareness would likely trickle down to handwashing and safe food. Based on current implementation and utilisation, the Environmental Sanitation Programme is the programme with the weakest implementation and the most unlikely to contribute to adequate nutritional status in both states. In Anambra State, the dire state of environmental sanitation could be influencing nutrition negatively. In both states, environmental health implementation strengthening must begin with the formation of the state technical committees on environmental sanitation as directed by the national policy on Environmental Sanitation of 2006. This would also have to be stepped down to the LGA. With the formation of these committees come the beginning of strategic plans for LGAs and then states on environmental sanitation. A restart of strict implementation of sanitation inspection in the states, especially homes and markets, would be needed to ensure the population adherence to environmental sanitation standards. In addition to the implementation actions needed, the Environmental Sanitation Programmes are in dire need of trained personnel and in-service training. Culture-specific human resources to meet the needs of the Environmental Sanitation Officers' job description as female officers are also important in Kebbi State. The state currently has the state environmental task force which can be quickly transformed to the state technical committee on environmental sanitation. In

Anambra, inputs needed range from the division of the state into zonal offices and allocating zonal staff to the zones to coordinate the different LGAs, equip the staff with transportation means to make the inspection, monitoring, and evaluation easier. Furthermore, the duties of the staff need to be executed by the staff who are trained as Environmental Health Officers and not consultants as is the norm.

6.7.4 Skills Acquisition

The potential of the Social Welfare Programme and institution at state level has been underutilised. States need to adopt the National Social Protection Policy to a state-focused social protection policy. The numerous social protection programmes that might not be understood as social protection such as the agricultural subsidies, women and youth empowerment programmes, and the rehabilitation programmes need to align to better coordinate under the auspices of the ministry. Close collaboration is needed with ministries and agencies, ministries such as the Health, Agriculture and Education are important in ensuring that the conditions, if any, are met. Agencies such as the National Population Commission and the National Identity Management Commission have the mechanism of ensuring that individual identification is authentic, as currently obtained in Child Development Support Grants implemented by the Save the Children and Action against hunger (Save the Children, ACF and CaLP, 2014). The convergence is a win-for-all situation, as the increased child education via enrolment and attendance and the increased utilisation of the health services would encourage health workers and teachers into better service provision. Specifically, in both states, there is a need to recruit unemployed youths aggressively, and further integrate nutrition health training into the curriculum of the skills acquisition. This integration and further nutrition training must be done by a staff member of the department of nutrition in the Ministry of Health.

Further inclusion of nutrition training during the examination will ensure that learnt principles are ingrained, understood, and internalised. The recruitment mentioned could also be done through convergence with other sectors and programmes that would aid in identifying vulnerable youths and women for whom the skills acquisition might provide an alternative means of income. Incorporating money and business management skills are fundamental to the management of any self-employment, so students on acquiring these skills need to teach excellent financial management skills and strategies. The findings of Kluve et al (2017) on the importance of targeting labour market interventions for disadvantaged youths confirm the researcher's ideas on the importance of targeting social protection programmes. It might be that these labour market-based interventions would

benefit rural and disadvantaged youths more, especially in Anambra State where the programme is only obtained in few LGAs.

Kluve et al (2017) goes ahead to list practical solutions through which labour market-based programmes such as youth employment programmes can be improved.

These improvements include:

- having a wholesome information system,
- identifying providers that can offer services such as cash transfers including wage/transport subsidies,
- providing counselling,
- identifying training needs and opportunities,
- placing beneficiaries into jobs/internships/apprenticeships,
- incentivising contracts that respond to the needs of the beneficiary and employers in replacement,
- desisting from placement bias,
- monitoring and evaluate the system with state-of-the-art systems including the jobs/internships,
- paying providers, and tracking beneficiaries.

The skills acquisition needs to be significantly reformed and then expanded to reach rural dwellers and the vulnerable population.

6.7.5 Convergence of sectors and programmes

Convergence of nutrition-sensitive programmes and ministries and subsequent linkages to ensure that one programme provides an avenue into another programme when needed, is missing in both states. This convergence is already advocated for and prescribed by the national policies but not implemented (MBNP, 2016). Despite the fact that they have been found to be important, multisectoral integration will render more outcomes for ECD education if they include family support and strengthen the package, life course care package, early learning, and protection package (Britto et al, 2016). Despite these benefits, convergence can only work if the need for integration is recognised, possible challenges are acknowledged ab initio and steps taken to mitigate them. These challenges include the workload of staff and supervisors, and the coordination and communication among ministries and staff (Digirolamo et al, 2014).

Integrating the different committees at state level by the State Committee on Food and Nutrition (SCFN) and at LGA level by the Local Government Committee on Food and Nutrition (LCFN) is also imperative. The SCFN, being the mother body of nutrition activities, has to stay in touch with the State Committee for IECD and State Committee for Environmental Sanitation, this will ensure that strategies are aligned with one another and incorporate the principles of nutrition-sensitivity (Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013). One way to strengthen the committees would be co-opting some of the members of the Education and Environmental Sanitation committees into the SCFN or LCFN meetings. Or ensuring that same person plays both roles.

At federal level, the National Committee on Food and Nutrition must acknowledge the role of environment in the fight against corruption and admit the Ministry of Environment into the committee, likewise at state and LGA levels. At the national level, an Environmental and Social Welfare strategy and link to nutrition must be developed by these sectors following the development by the ministries of Health and Agriculture. The State Committee on Food and Nutrition needs to primarily critically consider the nutrition-sensitive contributions of the member sectors and work to wholly align them to nutrition. Findings from the study show that strengthening nutrition-sensitivity can be done through ensuring convergence of existing programmes, creating an avenue for the nutritionist to impact nutrition training to programme beneficiaries, ensure that each programme is linked to another, develop sectoral strategies for nutrition, ensure that these target the vulnerable, poor and malnourished population more, and finally continually evaluate and adapt programmes.

Lastly, the closest level of government to the people is the LGA administration, coordination, and nutrition prioritisation at this government level would go a long way in effectively strengthening this programme. This includes strategizing the Local Government Nutrition Officer into coordinating and actively seeking opportunities for convergence with the nutrition-sensitive sectors. This can be made with a viewpoint of practically preventing new malnutrition cases and actively seeking out strategies for such prevention.

6.8 Conclusion

Contextual influences are universal yet precise. Several scholars have found that context and contextual analysis of programmes are vital (Victora et al, 2005; Friemel, 2008; Mendel et al, 2008; Clarke, O'Sullivan & Barry, 2010; Edwards & Ruggiero, 2011; Tomoiaia-Cotisel et al, 2013; Ward et al, 2018). Contextual factors such as location and poverty, play a role in all Ministries and programmes and yet are more structurally embedded in others. Religious and ethnic contexts that have produced inequalities still have a contemporary impact. A complex set of contextual factors intersect with socio-

political structures, and programme implementation to dynamically co-create contextual malnutrition epidemiology. These contextual influences highlight critical challenges for nutrition programming and mainstreaming nutrition-sensitivity. These challenges must be addressed if one wants to succeed in the calls for malnutrition reduction. In some cases, addressing these contexts might be embedded into the nutrition-sensitive actions and programmes, but either way, they must be adequately considered and factored in, carefully considering their implications for malnutrition.

This chapter has highlighted the importance of the use of a programme theory framework, the associated impact pathways and context-specific differences to identify programme bottlenecks and delivery issues associated with programme implementation. Although this has been carried out for examination purposes, using this kind of evaluation approach in programme evaluation might help programme managers identify loopholes, a more rigorous evaluation would need to be designed and executed accessing outcomes.

Chapter 7

7 POLITICAL ECONOMY ANALYSIS OF NUTRITION IN ANAMBRA AND KEBBI STATES NIGERIA

ABSTRACT

Adequate nutrition is pivotal to improving health and propelling human and national development in low-income countries. Despite this knowledge, its multisectoral nature has always led to less attention and commitment from various governments.

This chapter explores a case study of two states in Nigeria with varying malnutrition profiles and different context to analyse the political commitment to nutrition and its outcomes.

The data were collected using in-depth interviews and workshops to administer the Political Commitment Rapid Assessment Tool (PCOM- RAT) in a bid to measure institutional commitment, budgetary commitment, expressed commitment, agenda setting, and stakeholder analysis. Data for each axes of commitment and the streams are represented as proportions of the maximum value attainable in the questionnaire. This chapter finally identifies major strengths, weaknesses, opportunities, and threats.

Kebbi State has a high political commitment for nutrition with proportions ranging from 1 to 0.67 for each of the six-domains measured. In Anambra State, commitment varied, while institutional commitment was marginally high (0.67), the expressed commitment (0.71), and budgetary commitment was lower at 0.33.

Expressed commitment was higher in Kebbi State, though this can be attributed to the high presence and advocacy by donor agencies. Both states had the SCFN institution that aids policies and coordination of nutrition-sensitive sectors, but only Anambra had an active SCFN. In both states, as in other states in Nigeria, the budget control is the responsibility of the governor. Anambra had minimal funding for nutrition-specific activities, and Kebbi alternated the support for various nutrition-specific activities. Education and agriculture had a marginally better collaboration than the environmental and social welfare sectors. On state wise comparison, Kebbi seemed to have better support for programmes dependent on foreign donors than Anambra State. Both states have failed to adequately use the media to position and raise awareness on the issue of nutrition in the states. Possible influencers in Kebbi State include the foreign donors and the first lady. In Anambra State, the Chairman of the SCFN and the Commissioner of Health were identified as nutrition influencers.

Opportunities exist for strategic framing and advocacy of the nutrition profile of the states, especially using the local state media. The existence of institutional coordination committees made of different sectors facilitates driving commitment to nutrition actions, though this can be overshadowed by individual sectoral actions. There are open avenues and opportunities that can be hinged on to, to generate political commitment for nutrition in the states.

7.1 Introduction

In 2015 the United Nations member states at the expiration of the millennium development goals (MDGs) agreed to a new set of development goals – the sustainable development goals (SDGs) to be attained by 2030 (United Nations, 2015). Goal two calls for an end to child malnutrition. Given the inadequate performance of Nigeria in the MDGs (National Bureau of Statistics, 2015), achieving the SDGs seems far-fetched. A major stumbling block is the prolonged decline of malnutrition in the country where stunting has declined, albeit slowly in the country (NPC Nigeria & ORC Macro, 2004; National Population Commission, 2013). As a result, Nigeria together with India, has the highest number of malnourished children in the world. A low political will to address malnutrition head-on might be partly responsible for the slow decline. Most governments address health problems without necessarily focusing on nutrition. Senegal is an example of a country with a high political will for nutrition and this reflected in malnutrition reduction from 22 percent in 1992 to 17 percent in 2016 (Ministere de l’Economie & Macro International, 1992; Agence Nationale de la Statistique et de la Démographie (ANSD) [Sénégal] and ICF, 2017). This chapter reports the results of Phase 3 of the study. To analyse political commitment to nutrition at sub-national level in Nigeria, this study draws heavily on existing political economy frameworks. In the ten countries where PCOM-RAT was piloted, this open discussion approach served the dual goals of collecting nutrition-specific information, and location-specific advocacy efforts (Fox et al, 2014).

7.2 Literature overview

This section begins by exploring and defining selected themes of relevance regarding the tool used in this phase and the related nutrition governance body of knowledge. It further goes on to highlight country-level experiences and examples of political commitment.

7.2.1 Political commitment and prioritisation of the Food and Nutrition Policy

The wholesome utilisation of the UNICEF framework (Chapter 2) includes actions at the basic causal level. Nutrition governance, otherwise called political economy/will, is a deciding factor in the success of nutrition interventions, programmes, and policies, as much as it is a cooperation of people, processes, and resources (Gillespie, 2013; Sunguya et al, 2014). Addressing the political, institutional, and policy-related challenges is an important factor in mainstreaming nutrition (Acosta et al, 2012). Political “commitment” can be studied using three measurable indicators:

Budgetary commitment - the amount of funding committed by the government at state level to the nutrition agenda. Budgetary commitment showcases how much funds and resources are committed to nutrition. It also includes how resources are mobilised for the nutrition plans of action or strategic plans.

Expressed commitment - involves stated commitments in speeches or the availability of nutrition indices in state reports. This commitment is more of rhetoric than real implementation. The salience of nutrition in key state policies and programmes also come as part of the stated commitment.

Institutional commitment - involves the availability or lack of a multisectoral nutrition body and the production of laws, strategy plans, and policies. It also includes the level of coordination among various sectors or relevant governmental constituent parts (Shiffman & Smith, 2007; Reich & Balarajan, 2012; Fox et al, 2013; Gillespie, 2014; Smith, Shiffman & Kazembe, 2014; Shawar, Shiffman & Spiegel, 2015).

7.2.2 Policy Window of Opportunity

The recession in Nigeria and the continued state dependence on a monthly allowance from the Federal Government means that scarce resources are now tighter with numerous agendas vying for funding. Kingdon (2003, 2011) submits that the convergence of the problem, policy, and politics streams at a given moment presents a window of opportunity to advance policy issues on any agenda. The problem stream refers essentially to policy problems in a society that potentially requires attention. The policy stream pertains to the many potential policy solutions that originate from policymakers, experts, and lobby groups, and the politics stream refers to factors such as changes in government, legislative turnover, and fluctuations in public opinion. According to the Kingdon theory, these streams flow mostly sovereign until situations bring them together. 'Open Windows' of opportunity exist for policy entrepreneurs to seek policy change when a problem is acutely manifested (possibly in a dramatic 'focusing event'), in the presence of political will to address the issue, and solutions that were previously not high on the political agenda (Kingdon, 2011). This open window is in effect a blending of the 'problem' and the politics', producing resultant interest. The Kingdon theory has been applied in different contexts and fields (Greathouse et al, 2005; Odom-Forren & Hahn, 2006; Balarajan & Reich, 2016b).

7.2.3 Stakeholder and institutional analysis

Previous literature had identified network and actor features as one of the three overarching factors that influence the emergence of the active issue (Shiffman et al, 2016). This network and actors can be likened to institutions and stakeholders. Important features surrounding them include internal factors such as strategy, structure, and attributes of the stakeholders that make up the network or institution. In this regard, deciding factors on the success of institutions include leadership, governance, composition, and framing strategies. Institutions success thus depends on capable, well-connected, and respected champions as leaders, the ability of the governance structure to facilitate collective action and resolve disputes, diversity of the stakeholders involved which can help or hinder success, and stakeholders positioning the issues that can help resonate with external actors and political actors (Shiffman et al, 2016).

Shiffman (2007) also stresses the importance of institutions in a *Lancet* paper, after a framework was applied in retrospect to maternal mortality reduction. Shiffman (2007) concludes that the four inputs necessary for creating political momentum includes cohesion among policy community, lasting institutions, outer frames that raise concern for the issue, and external links between national initiatives and civil society.

A systemic approach as advocated by Baker et al (2018) to nutrition implies multisectoral, multi-level, and multi-stakeholders. Various sectors such as WASH and education are political economy stakeholders. Multi-level draws in participants from different levels of the organisations from high ranking to fieldworks. Multi-stakeholders ensure that civil society organisations, media, and humanitarian agencies are involved. This systemic approach draws from the understanding that no single sector can single-handedly diminish the prevalence of malnutrition in any given context.

7.2.4 Scaling up nutrition strategic objectives comparison

To further illustrate the importance of political commitment and economy, this review analyses the cases and success of Senegal and Bangladesh, further highlighting the factors that were responsible for each country's success and otherwise.

The Scaling Up Nutrition (SUN) movement has strategic objectives for measuring country performance. This section compares the nutritional indicators of Bangladesh, Senegal, and Nigeria in addition to the SUN strategic objectives achievements of these countries. Figure 7.1 presents the nutritional indicators, and it shows varying performance in the different indicators. While Senegal performed well in stunting having the lowest prevalence (20.5 percent) and the lowest prevalence of under-five overweight (1 percent), the anaemia prevalence was very high at 57.5 percent. Though Senegal's stunting prevalence was lower in comparison to Nigeria and Bangladesh, it is still considered a medium public health issue according to the WHO (WHO, 1995b). Bangladesh, on the other hand, had the best prevalence of exclusive breastfeeding (55.3 percent) and the lowest prevalence of adult overweight (18.1 percent), and obesity (3.6 percent). Nigeria had the worst exclusive breastfeeding rate of 17.4 percent, adult overweight of 33.3 percent, and adult obesity of 11 percent.

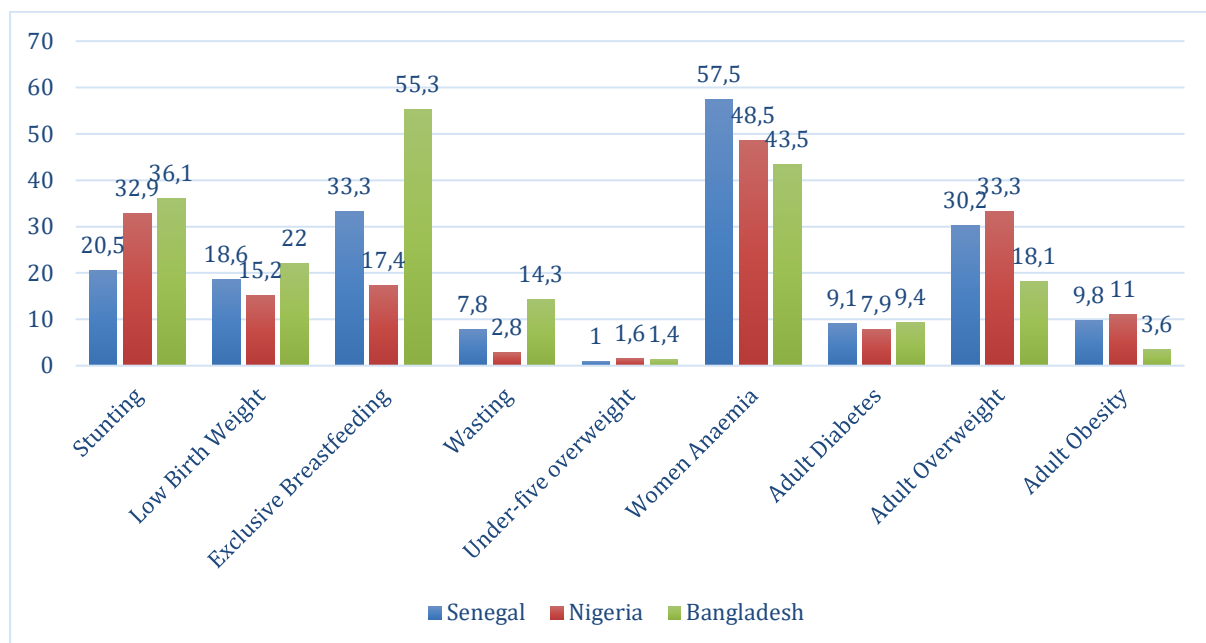


Figure 7.1: Malnutrition indicators in Senegal, Nigeria and Bangladesh, Source: SUN, 2018.

a. Senegal case study

Turning now to the SUN strategic objectives, The Cellule de Lutte contre la Malnutrition (CLM) in Senegal is situated in the president's office and coordinated all nutrition relevant projects and policy implementation. The CLM prepared the National Nutrition Policy, the five-yearly strategic plan, and the National Agricultural Invest Program (2011-2015). Senegal has relevant policies, norms and protocols for child survival finalised in 2016, current discussions are considering strengthening the legislation on breast-milk substitutes. In 2016, Senegal finalised the Strategic Multi-Sectoral Nutrition Plan, twelve sectoral action plans guiding the implementation and role of actors are currently in place, with the support of donors. Government budget allocation level towards nutrition is still stable with continued support from donors and new donor actors such as Spanish and Japanese development partners joining in (SUN, 2017c).

External factors cited as responsible for Senegal's change include advocacy by international partners, a paradigm shift from project to programme approach in the international development community, a shift towards mainstreaming nutrition into development, and a shift from fight malnutrition to more emphasis on prevention and less on food distribution/security. The World Bank has spent more than a decade in Senegal raising the profile of nutrition, funding large interventions, and facilitating donor dialogues (Ndiaye, 2009). Internal factors responsible for malnutrition improvement include the political will of higher authorities for nutrition, the leadership of a nutritionist and programme management governance, and excellent performance by the National Executive Bureau (Ndiaye, 2009). Certain strategies that appear to have worked in Senegal include influence over key actors such as the Minister of Finance, the use of contextual multisectoral approach, targeting potential partners with issues of interest, management training, leadership to advocate, a focus on results, and focusing on coordination

In summary, as Kampman et al (2017) noted, the mechanism through which nutrition in Senegal has improved are a commitment of actors, horizontal and vertical coherence, and community experiences. Senegal has continued to show high-level commitment to nutrition, by joining SUN and Renewed Efforts Against Child Hunger and undernutrition, by locating CLM in the prime minister's office. This commitment is also confirmed by Gillespie and van den Bold (2017) that Senegal has a strong explicit government commitment to nutrition and multisectoral implementation. Institutional coherence is also an important factor in Senegal's success story, beginning with CLM's role in coordinating actors and sectors which has strengthened sectors and made them proactive in incorporating nutrition. Budget and competing priorities still limit their success (Kampman et al, 2017). Senegal's challenge begins to form the framing of nutrition as non-health, especially at local government level and policy agenda (Gillespie & van den Bold, 2017).

b. Bangladesh case study

For Bangladesh, the Bangladesh National Nutrition Council (BNNC) Secretariat has been revised and included in the second National Plan of Action on Nutrition (NPAN) 2016 to 2025 and awaiting the prime minister's approval. The Civil Society Alliance for SUN, Bangladesh is in the process of developing an enhanced communication and advocacy plan. Policies appear on track as the NPAN, health, population, and nutrition sector programmes have also been developed. The second country investment plan on nutrition-sensitive food systems was launched in October 2018 (FAO, 2018). Bangladesh uses a Common Result Framework (CRF) for M&E as described in the NPAN2. An inter-agency M&E is hosted in the BNNC Secretariat. Domestic contribution to nutrition has continued to increase and is tracked by the National Food Policy Plan of Action, the Country Investment Plan monitoring report, and the budget analysis exercise with the SUN movement. Nutrition has also been included in the government's five-year plan. This allows for predictability regarding funding, for instance, under the midterm budget, the Ministry of Finance provides funds for the next three years (SUN, 2017a).

Bangladesh has reduced malnutrition from 55 percent to 36 percent from 1997 to 2014 (Headey et al, 2015). The factors responsible for the reduction in malnutrition ascribes 53 percent reduction to increased assets, increased parental education especially maternal education, reduced open defecation, antenatal care, reproductive health factors, and maternal height (Headey et al, 2015). Nisbett et al (2017) speculate that the 47 percent remaining can be accounted for by underlying drivers such as food security and dietary diversity, child and maternal health, water and sanitation, and basic drivers such as income and gender.

The uniqueness in Bangladesh's story is the presence of active nutrition-sensitive sectors perhaps headed by a vibrant NGO sector in the presence of enabling economic environment. Helen Keller International, for instance, has implemented homestead food production in Bangladesh for more than 20 years. Evaluation evidence shows that this intervention has improved food security for about five million vulnerable people in Bangladesh across varying agroecological zones (Iannotti, Cunningham & Ruel, 2009). This brings another angle of NGO vibrancy and taking charge of nutrition-sensitivity with positive returns on nutrition despite health system weakness (Nisbett et al, 2017). Verifying this, Gillespie and van den Bold (2017) agrees that wide-scale action by NGO's, often with the support of international partners, has led to changes in Bangladesh.

Bangladesh's main challenge stems from an inadequate understanding of malnutrition and thus reduced commitment for implementation and monitoring. Lack of funding and support for national-level policies (Gillespie & van den Bold, 2017) are also role-players. Other issues that have been

identified in Bangladesh include variation in the opinion of the scope of the malnutrition problem and the appropriate response thereto between the government donors and the civil society. A lack of coordination between the sectors and actors (Taylor, 2012) have thus been identified as a significant problem.

c. Scaling up nutrition in Nigeria

In the case of Nigeria, The National Committee on Food and Nutrition (NCFN) are expected to meet quarterly with a mission to review and align activities of ministries, departments and agencies with the National Food and Nutrition Policy (NFNP). A multi-stakeholder platform (MSP) also exist which bring together representation from government, UN agencies, donors, SUN Business Network, Civil Society Scaling Up Nutrition in Nigeria (CS-SUNN), and academia. Different national policies and plans have been developed, with advocacy and strategy material translated into local languages. Infrastructure exists in the NFNP and efforts at strengthening the nutrition surveillance are being made. Efforts have been made to continue financial commitments to nutrition budgets (SUN, 2017b). As illustrated in Table 7.1, Nigeria does well in bringing people together and making coherent policies, but bad at aligning programmes and tracking resources.

Table 7.1 SUN country strategic objective scoring

Strategic objectives	Senegal (percent)	Bangladesh (percent)	Nigeria (percent)
Bringing people together	68	69	69
Coherent policy and legal framework	75	74	90
Aligning programmes around a common results framework	71	50	39
Financial tracking and resource mobilisation	61	50	46
Overall score	69	61	61

Source: SUN 2018

The SUN's strategic objectives and indicators do not adequately explain what has happened over the years, the decline, and the rate of decline and factors that might have led to the decline if any. Other studies and examples as explained under the country experiences have been relied upon to present such explanations. These two countries, Senegal and Bangladesh, have made significant reductions in the prevalence of stunting in two different ways. Various lessons can be learned from the countries. Firstly, different routes would lead to a reduction in malnutrition in different countries and regions. What works in one country might not necessarily work in another. Secondly, systems are critical to

these processes. For instance, in the absence of political commitment and strong multisectoral integration, the NGOs in Bangladesh have gone on to implement pro-poor programmes mostly in nutrition-sensitive sectors that have impacted malnutrition prevalence. This has been highlighted under the Bangladesh case study above.

7.3 Justification

With the current decade of nutrition initiative, the SDGs are all underway to ensure that the prevalence of malnutrition reduces in the world. In Africa, high powered commitment is also taking place with the World Bank and AfDB and the commitment of heads of state of nutrition. All the while commitments are generated at national levels with numerous stakeholder engagements in nutrition policy development and implementation. Baker et al (2018 p 5) has demonstrated in a systematic review that *“the determinants of commitment identified were dynamic, strongly interdependent and context-dependent”*, thus demonstrating system-like features. Conducting political commitment analysis in context and awareness of these dynamics and inter-dependence is thus vital in nutrition advocacy and the ascendance of nutrition to the policy table. This study is highly relevant for the efforts to generate political commitment and identify windows of opportunity at state level in Nigeria. This phase explores the experiences, political commitment, and window of opportunity from the two states about nutrition agenda setting.

7.4 Objectives

The main aim of this phase is to explore the political economy of nutrition in the study states.

7.5 Methodology

7.5.1 Study design

This phase assessed the political commitment to nutrition-sensitive interventions using qualitative and quantitative methods. The Political Commitment and Opportunity Measurement Rapid Assessment Tool (PCOM-RAT) was used (Fox et al, 2014).

7.5.2 Sampling

Purposive sampling was used to select the study sample. Eight participants from senior officers in all nutrition-sensitive ministries namely, Agriculture, Education, WASH, and Social Welfare were invited. The invitation letter was addressed to the Permanent Secretary or the Commissioner, who then forwarded it to the appropriate representative of the Ministry. Two participants were also invited from the nutrition department of the Ministry of Health (these participants are important to agree/disagree on the nutrition political economy in the state), making it a total of 10 workshop participants per state. Requests were made to the most senior stakeholders in the ministry through an introductory letter, and subsequently followed up with calls. Where the most senior stakeholder was unavailable, the next in rank or a senior officer whom he/she appoints attended the workshop.

For the workshop participants, the ministry had the total control over whom they sent to the workshop. In most cases, they sent representatives that worked or led the nutrition desk office. For the interviews, participants were chosen purposefully, and only the permanent secretary and director was interviewed for political commitment, as staff lower in rank were unlikely to have access to information relating to such commitments. In addition to these, the State Nutrition Officers (SNO) were also interviewed as they were the secretaries of the SCFN. No contact was made with the workshop participants before the workshop. The participants interviewed, were contacted, informed consent sought, and a suitable time fixed for the interview.

7.5.3 Constructs measured

The constructs measured include:

1. Assessing expressed, budgetary, and institutional commitment to nutrition in the states,
2. To assess the policy window of opportunity through the problem, policy, and politics stream, and
3. To identify avenues for political will generation in the study states.

7.5.4 The instrument

The PCOM-RAT is a scoring tool and has been piloted in ten developing countries with groups of stakeholders scoring the questionnaire jointly (Fox et al, 2014). The PCOM-RAT is made of factual and subjective questions. It has three major components: the political commitment component that collects information on expressed, institutional and budgetary commitment. The second component is the policy windows of opportunity, which investigates the problems, policies, politics and other external factors that affect nutrition in the study areas. The final component is the stakeholder and institutional analysis which looks at the different institutions existing in the states and identifies

supporters and opponents of nutrition in the different sectors and their veto power to influence or oppose nutrition agenda (see

Appendix 12). The theoretical framework is shown in Table 7.2.

Table 7.2 Components of the political commitment

Components	Constituents
Political commitment and prioritisation of Food and Nutrition Policy.	Expressed commitment.
	Institutional commitment.
	Budgetary commitment.
Policy window of opportunity.	Problem stream.
	Policy stream.
	Politics stream.
	Other factors: external influences.
Stakeholder and institutional analysis.	Stakeholders and institutions.
	Existence of powerful opponents and supporters.
	Ideological character of the government.
	Number of veto players.

Source: Fox et al (2013)

7.5.5 Data collection procedures

This phase focused on gathering information on political commitment through a workshop. The purpose of the workshop was to collect information on how socio-political factors in the four ministries can affect the design and implementation of nutrition-sensitive interventions. The PCOM-RAT (

Appendix 12) was completed at the workshop. The PCOM-RAT was administered in these interviews. They ranged from permanent secretaries of ministries, directors and deputy directors, the interviews lasted from 30 to 90 minutes. Additionally, key informant interviews were conducted with key stakeholders concerning a commitment to nutrition in the states. The interviews were carried out with stakeholders outside the workshop.

7.5.6 Internal validity and reliability

The use of purposive sampling ensured that the researcher deliberately included outliers and thus allowed for deviant cases and opinions to be highlighted. The data analysis was coded multiple times to ensure reflection on possible missed codes. The use of multiple types of data (quantitative answers and qualitative discussions) is a means to ensure the internal validity of collected data. To ensure

consistency, the cleaned data was coded twice, and coding consistency checked (Inter-university Consortium for Political and Social Research, 2012).

7.6 Data collection

7.6.1 The Workshop

Two individuals facilitated the workshop in both states, the researcher and an assistant. The researcher was the moderator, managing the questionnaire and ensuring that all views are expressed within the time limit. The assistant helped with setting up the venue and assisted with other logistics such as refreshments. The one-day workshop was held using an agenda that ensured all aspects of the PCOM-RAT was covered. The respondents completed the questionnaire jointly and the moderator gave room for discussion of both subjective and factual questions before the participants agreed on an answer. The workshop was conducted in English, the Nigerian government's operational language, and was recorded to ensure accurate information gathering and transcription. See Table 7.3.

Table 7.3 Workshop participants

	Agriculture	Education	Environment	Water	Welfare	Health	Total
Anambra State	1	3	3	0	2	0	9
Kebbi State	0	2	1	2	1	3	9

The Nutrition Officers were not included in the workshop but interviewed using the same tool (1 Officer per state). In addition, some of those invited to the workshop were unavailable, but was interviewed on another time, using the same tool. The interviews which were researcher administered began with personal and project introductions, followed by a little motivation on the need for the political commitment assessment. The PCOM-RAT was used as an interview tool to discuss political commitment. In some cases, there was more qualitative discussions than pinpointing answers. See Table 7.4.

Table 7.4 Number of interviews

	Number of interviews
Anambra State	3
Kebbi State	2

7.6.2 Accessibility of participants

Accessing top officials was easier in Kebbi State than in Anambra State. They had an open-door policy that meant walking up to the officials and stakeholders were easy. Participants were assured of confidentiality. Thus, data analysis was anonymised with regards to that promise. All participants were acquainted that the interviews and workshops was recorded, and their consent was obtained at the beginning of the workshops and interviews.

7.6.3 Data analysis approach

All recordings were transcribed by the researcher in MAXQDA (VERBI GmbH) software. The workshops were identified by the state name. This was used to identify the notes taken, audio files and transcript documents. The PCOM-RAT answers were then listed in a Microsoft Excel spreadsheet and the scoring algorithm allocated per score sheet.

Each selected question was assigned a score of zero or one. For factual “yes”/“no” questions, one was assigned for “yes”. For questions scaled from one (1) to ten (10), one (1) was assigned to answers seven (7) or higher. For budgetary questions, which were scaled on zero to three, a three was assigned for adequate resources. The total of this algorithm was plotted in radar plots for six different domains. The PCOM RAT scoresheet has been attached in Appendix 13.

Discussions during the workshops and interviews were transcribed and coded line-by-line (Auerbach & Silverstein, 2003). Once all transcripts had been coded, the PCOM-RAT themes were used in analysing the transcripts. The researcher used an interactive strategy of merging (Creswell & Clarke, 2011) to further analyse the PCOM-RAT data, workshop discussions and key informant interviews together by relating them to each other to facilitate comparison and interpretation. Reaching further government policy documents, national surveys, donor reports and newspaper/magazine articles has been used to validate data gathered. This triangulation would aid in enhancing quality and reduce bias (Patton, 1999; Carter et al, 2014).

7.7 Limitations of the study

The study acknowledges several limitations. First, the qualitative approach meant that key stakeholders interviewed on such a complex issue had tendencies to be optimistic or pessimistic. Second, this study focused on the nutrition agenda setting and not implementation. Further analysis of the political economy of implementation in both nutrition-specific and sensitive policies and programmes would have strengthened the study which was constrained by time, funds, and scope. In

addition, not all potential interviews agreed to participate and thus some stakeholders were not interviewed. The study is thought to have reached full elicitation of meta-themes (Guest et al, 2006). Merging the data sources, also helped the study to reach data saturation. There was variation in ministries and cadres of individuals interviewed and who participated in the workshop, which might result in variation in results and findings. For instance, the workshop in Anambra State had two members of the SCFN in attendance, while none from Kebbi attended. On the other hand, the workshop in Kebbi had the presence of Ministry of Health officials and this was missing at the workshop in Anambra. There was also variation in ministerial attendance. For instance, in Kebbi, there was no representative from the Ministry of Environment although they were invited. However, they were duly represented at the workshop in Anambra State. The integration of findings from key informant interviews and the workshops presented robust data that can reliably show the political will in both states.

There is also the challenge of the ability to elicit unbiased data from the study participants who happen to be government officials. Given the complexity of this topic and the fact that the assessment needed was that of their employer, some bias were expected.

Another issue is that this study focused on nutrition-sensitivity and the lack of attention on nutrition-specific interventions, which might delineate some other activities that have been influenced by policy. Reforms happening in these programmes and interventions are worthy of analysis. The results of this exploratory study should be interpreted in light of these limitations.

7.8 Results and discussion

The results of the political commitment are presented under the themes below:

7.8.1 Quantitative results from the workshop

To assess the political commitment, the PCOM-RAT was administered to participants in a one-day workshop. Table 7.5 shows the main breakdown of the scores in each theme, and the radar chart in Figure 7.2 shows a plot of the proportions in each theme.

Table 7.5 Total points achieved per section by state

	Political commitment and prioritisation of Food and Nutrition Policy (percent)				Policy Window of Opportunity (percent)				Interest group mobilisation (percent)
	Expressed commitment	Institutional commitment	Budgetary commitment	Total	Problem stream	Policy stream	Politics stream	Total	
Kebbi	85.7	66.7	100	75	80	75	100	81.8	100
Anambra	71.4	66.7	33.3	62.5	60	100	50	72.2	100

Table 7.5 above summarises the findings from the PCOM-RAT as agreed by workshop participants. Both states had similar scores in institutional commitment, and interest group mobilisation. Kebbi scored more than Anambra in budgetary commitment, problem, and politics stream. While Anambra State did better in the policy stream. A figure of the proportions has been plotted and shown in Figure 7.2.

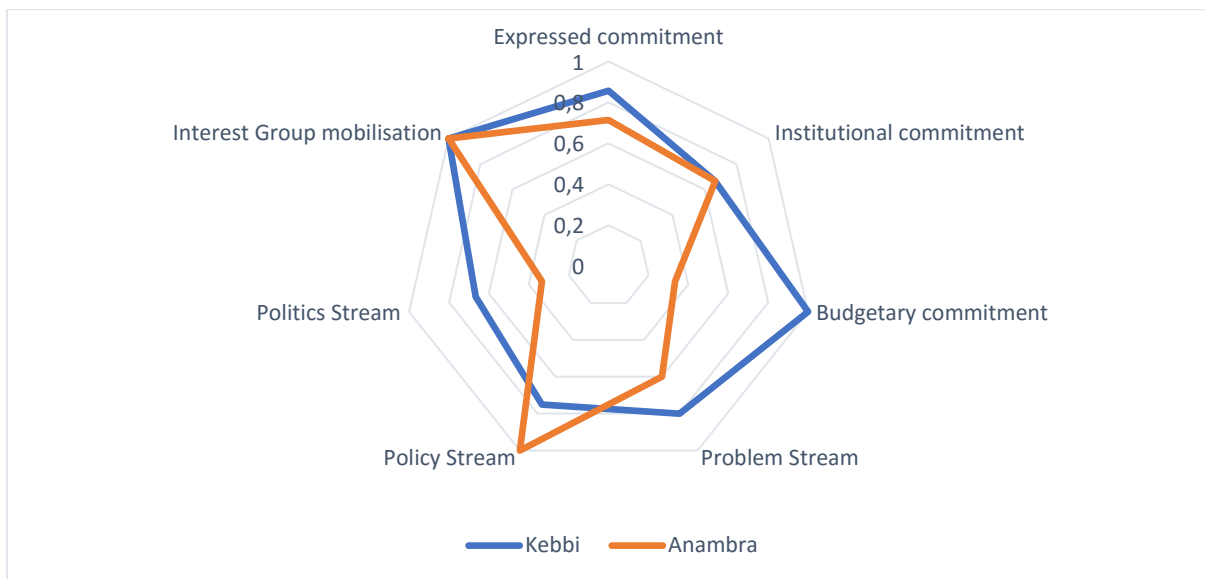


Figure 7.2: Radar plot from PCOM-RAT workshop in Anambra and Kebbi states.

7.8.2 Political commitment and prioritisation of Food and Nutrition Policy

a. Expressed commitment

Seven items on the questionnaire measured the expressed commitment of key stakeholders to nutrition in the states. As can be seen from the Table 7.5, Anambra State had an expressed commitment of 71.4 percent while Kebbi State had 85.7 percent, which translates good commitment from both states.

b. Institutional commitments

On the questionnaire, six items assessed institutional commitment in both states. Both states also had a good institutional commitment to nutrition with 66.7 percent.

c. Budgetary commitments

The budgetary commitment was assessed using three items in the questionnaire. Anambra State had a lower budgetary commitment to nutrition with 33.3 percent against 100 percent for Kebbi State, which was good.

7.8.3 Policy Windows of Opportunity

a. Problem stream

Nine items in the questionnaire were used to assess the problem stream in the study, of which Kebbi State scored 80 percent and Anambra State 60 percent.

b. Policy stream

The policy stream was measured using seven items in the questionnaire. Anambra State had an excellent policy stream with 100 percent and Kebbi State had a score of 75 percent.

c. Politics stream

Five items on the PCOM-RAT measured the politics stream, of which Kebbi's score was 100 percent and Anambra State was 50 percent.

d. Stakeholder and institutional analysis

In this section, only the interest group mobilisation was scored in this section and a best possible score of one. Both states scored 100 percent.

7.9 Qualitative results from the workshops and interviews

This section will systematically present and discuss factors operative in the measured streams according to the instrument used which is based on Kingdon's model (Kingdon, 2011). The following keys will be used to refer to sources of information: KWC – Kebbi Workshop Consensus, AWC – Anambra Workshop Consensus, KWP – Kebbi Workshop Participant, AWP – Anambra Workshop Participant, KI – Kebbi Informant, and AI – Anambra Informant. Numbers have been assigned to the interviews and was used to identify each key informant.

7.9.1 Political commitment

a. Expressed commitment

In both states, the primary venue for stating commitment to nutrition was the MNCHW that is held twice every year in all the states in Nigeria. In Kebbi State, nutrition received a high level of expressed commitment among the administrators of the various ministries. Three main speakers were identified at the workshop. Firstly, the director of the Department of Child Development in Kebbi State mentions nutrition components when speaking at Orphan and Vulnerable Children (OVCs) events (KWP 1). Secondly, the commissioner or permanent secretary in the ministry always emphasises on the importance of WASH to health (KWP 4). Lastly, the first lady of Kebbi State, who flags off the MNCHW or the Commissioner of Health in her absence, most recently in November 2017 (Dankatsina, 2017). The first lady had adopted nutrition and other health matters due to her qualification as medical doctor (KI 1).

In Anambra State, the Commissioner of the Ministry of Education mentioned nutrition with regards to early marriage (Anambra Workshop Participant [AWP] 1). Nutrition issues fall under the Ministry of Health in Anambra State, as with all states. Anambra has adapted to limited funding by employing every opportunity to talk about the consortium of programmes embarked by the Ministry of Health (Anambra Interview [AI]). The MNCHW is always flagged off by the governor (Ujumadu, 2017) or his wife, in this state.

b. Institutional commitments

In May 2007 the Federal Government of Nigeria approved the National Council on Nutrition, the council recognised the NCFN already domiciled at the Ministry of Economic and National Planning (MBNP, 2016). The state and LGA counterparts of the Ministry of Budget and National Planning were to serve as the focal points of the Committee of Food and Nutrition in their respective administrative zones (MBNP, 2016). In both states, the SCFN was in existence and headed by the Permanent Secretary of Budget and Economic Planning, while the State Nutrition Officer was the secretary of the committee

(KI 2, AI 1). Other members of the committee include the permanent secretaries or the representatives of the following ministers – Education, Women Affairs and Social Welfare, Agriculture, Information, Science and Technology, Local Government, Finance, and state directors of related agencies such as Standards Organisation of Nigeria, National Agency for Food and Drug Administration and Control, and representing the head of the following: Department of Nutrition, State Nutrition Society of Nigeria and State Planning Commission (MBNP, 2016). Kebbi used to have vibrant SCFN; however, this committee was “slumbered” and has not met in recent months or years.

“You (One) cannot say that (Kebbi State) SCFN is not functional. Slumbered might be a better word” - (KI 1).

The most critical factor affecting the SCFN was the financial support from UNICEF. Without ready support from UNICEF, especially financial support and the requests to hold the SCFN meetings, the will to hold the meetings declined. Efforts are being made to restart the meetings and factor in the cost of the meetings into the budget (KI 2). In Anambra State though, the committee was functional, active and has been holding regular meetings lately to finalise their state plan of action for nutrition. This hasn't always been the situation and one participant offered some explanation

“We depend solely on UNICEF to push these meetings. So once UNICEF closed their office in Enugu, nothing has been happening here regarding nutrition. Towards the ending of last year, they began pushing for the strategic plan and we started again. Coupled with the new perm Sec (Permanent Secretary)” - (AI 1).

Both states are at different stages regarding their strategic nutrition plan of action, which is a multisectoral costed plan stepped down from the federal level. Kebbi State finalised and published their strategic plan in 2016 and few LGAs in the state had published the plan with the support of the WINNN programme (KWP 3). In Anambra State, no LGA had a plan of action and the state plan has just been finalised and at the printers, at the time of data collection (AI 1, AI 2).

c. Budgetary commitments

With regards to budgetary commitments, both states had a budget line for nutrition in the 2018 budget. According to KI (1), Kebbi began the idea of budgeting for nutrition in the country even before the Federal Government started budgeting for nutrition. This budget appeared to be for nutrition-specific interventions mostly and limited to nutrition-sensitive interventions (KI 1, AI 1). Kebbi has a state average of 60.6 percent stunting and also very high LGA stunting estimates (See Chapter 4). Anambra also had budget provisions for the SCFN to allow them to sit intermittently (AI 2), while in Kebbi it was just being discussed (KI 2). Kebbi State rated current resources adequate to meet their needs (Kebbi Workshop Consensus [KWC], KI 1) while Anambra participants thought it was substantial

but not sufficient (AWC, AI 1). In Anambra State, 2018 budget would be the first where nutrition has a budget line (AI 1). Allocation of resources in both states was a function of need and at the prerogative of the executive, mainly the governor (AWC, KWC). The governor though could be persuaded by the commissioner in the case of Anambra State (AI 1).

None of the states rated food and nutrition programmes as having adequate resources. The current wave of agricultural renewal, agenda and agricultural promotion policy of the Federal Government of Nigeria (Federal Ministry of Agriculture Nigeria, 2016; Adetayo, 2018), seems to have played a role at state level too. Food Security and Agricultural programmes were individual programmes said to have adequate resources (KWC, AWC). It is believed that the respective state governments have incorporated into the agricultural agenda of the Federal Government. One state participant bellies this belief:

“You know the Federal Government has focused on agriculture well. The State Government too. There is Anchor Borrowers, there is the rice. Infact our current governor has done well in terms of agriculture” - (KI 2).

In Anambra State, the interest in agriculture is understood as the governor’s parochial attitude and interest in matters that solely concern his most immediate constituency:

“The only thing we hear is agriculture this and that. He is only interested in the things that concern Anambra East and West LGA, Ayamelum them... That side of the state. Nothing is happening elsewhere” - (AWP 7, 11).

Astonishingly, results from Chapter 4 showed that these LGAs had the highest burden of stunting in Anambra State.

Kebbi mostly agreed to have adequate resources to meet their nutrition needs. While in Anambra State, nutrition had limited resources. However, this optimism in Kebbi tended to their eagerness to the cup as half full in addition to the surplus contribution of donor programmes and funding in the state. The complexity of donor funding in Nigeria also comes into play in the funding allocation in Kebbi. A recent UNICEF evaluation of the MNCHW observed that average state funding for the MNCHW has decreased from about 13.7 million naira in 2013 to 5.4 million naira in 2015 (UNICEF Nigeria, 2016). This availability or non-availability of funding has to be interpreted with caution as participants had a hard time divorcing nutrition from just nutrition-specific interventions and programmes. For instance, when asked about funding adequacy in Kebbi State they reported a partial release of MNCHW funds and no releases for the Ready-To-Use Therapeutic Food (RUTF) programmes, which were solely nutrition-specific interventions. On further probing on sectoral adequacies,

agriculture and education were the sectors supported most next to health, while social welfare and environment were supported less in both states (KWC, AWC).

Analysis of the commitment identifies several kinds of support existing in both states. Kebbi has a very high prevalence of stunting, an average of 60.4 percent, which draws in donor bodies and agencies, this in effect leads to expressed and budgetary commitment (see Figure 7.2). But does not trickle down to institutional commitment as it is not state driven. Anambra State on the opposite end of the stunting prevalence rate (18.4 percent) has low expressed commitment compared to Kebbi's low institutional commitment. Currently, there appears to be some sort of institutional commitment, though also driven by UNICEF. Budgetary constraints also present a great impediment to the fight against malnutrition and the mainstreaming of nutrition-sensitivity. Primarily budget can be both a constraint and a promoter (Kingdon, 2011). As a constraint, it can lead to the total reduction of strategies and the avoidance of strategies totally. This might be a possible explanation for the avoidance of RUTF by the Kebbi State government. As a promoter, it pushes few or selected items up the agenda of government, a clear case of the agricultural interventions in the states, which has been pushed by budgetary allocation needed to pay for counterpart funding of the programmes.

7.9.2 Agenda setting: Opportunities to advance nutrition in the states

a. Problem stream

The problem stream will be discussed mainly under the instruments sub-heading of availability of credible indicators, events and public attention, policy champions advocacy and cohesion among the advocacy community.

Credible indicators: While the statistics of malnutrition prevalence was available in both states, only officials in Kebbi seemed to have it readily available and known. One participant noted:

“We want to reduce that existing high malnutrition number in the state” - (KI 2).

Similar statements were also regularly cited by the nutrition champions (KWP 8, KWP5). In Anambra, the state has been categorised as not a severe acute malnutrition state (AI 1) but more so, few participants did not believe that there was malnutrition in the state or even some cases of SAM in the state:

“It is unbelievable that children in this our Anambra State are malnourished. I really do not believe it” - (AWP 6).

Focusing events and public attention: Both states identified the gap in nutrition coverage in the local media and thus an opportunity for nutrition advocacy and awareness. The attention to malnutrition

in the local media was lacking. Neither qualitative nor quantitative evidence were heard on the local TV or radio:

“The media are not doing their jobs, or maybe the nutrition people needs to invite them. If people knew about the prevalence of malnutrition, they will be prompted to act” - (AWP 7).

This was also confirmed in Kebbi State (KWC) but they also offered some sort of explanation, attributing it to the current flux of cable TV and arguing that even if they had such news people would not receive it as most people depended on cable TV (KWP 6). That said, both states had several jingles and/or talks on nutrition on the radio. Kebbi had jingles regarding the MNCHW and Saving One Million Lives (SOML) sponsored talk shows about health components like immunisation, vitamin A supplementation, and other primary healthcare interventions.

The most recurring nutrition event was the biannual MNCHW (National Primary Health Care Development Agency, no date). The development of the costed plan were events that drew attention to nutrition in both states, mostly for middle-level stakeholders (AWC, KWC). In Kebbi State, other events include intermittent visits and activities of high-panelled development partners to the Kebbi State executive governor to increase the profile of malnutrition in Kebbi State. A just ended WINNN had also been holding small-scale demonstrations in their LGA of operations (ORIE, 2015).

The lack of severity of malnutrition in Anambra State generally reduced the profile of malnutrition in the state. The policy advocates did not refer to the extent of the malnutrition in the state, believing it to be minimal. WHO classification of malnutrition severity classifies Anambra State with a stunting rate of 18.4 percent as medium severity (WHO, 1995b) A recurring reason on the low attention to nutrition was the lack of development partners, this mostly referred to the UNICEF office in the South East region which closed months ago (AWP3, AWP 5, AI 2).

External framing – public portrayal that resonates with political leaders/issue framing: The framing of malnutrition advocacy was based on the quantitative and qualitative evidence on the ground. In Kebbi, the unfavourable comparisons to other states (KI 2) in addition to pictures, visits to the children, and malnutrition indices was the lever for advocacy efforts (KW 6). In Anambra State qualitative evidence of malnourished children, especially by the SCFN, were the outstanding initiative that drew gains to the advocacy efforts, especially as stakeholders in the state were beginning to think that malnutrition does not exist in the state. Some stakeholders in the state though believe that portraying those images would impact negatively on the image of the state (AI 1).

Policy champions and advocacy: While Anambra State had a civil society that was working, they were not influential towards policy change. The civil societies on ground act independently and have a grassroots impact but do not have the ears of those in power. In Kebbi State, the civil society was not

visible, if they existed. Anambra State participants identified the permanent secretary of the Ministry of Budget and Economic Planning, who's also the chairman of the SCFN as the most important advocate for nutrition in the state (AWC). In Kebbi State, the influencers were the traditional rulers, as they had the power to convince the people to participate in nutrition interventions. The Emir of Argungu and the 109 head has taken it upon themselves to champion nutrition (KI 1). The first ladies of both states were also identified as having some sort of power to influence nutrition, mostly through campaigns, speeches, and spousal influence (AI 1, KWC)

Cohesiveness of advocacy community: While all advocates agreed on the prevalence and cause of malnutrition in the state, there were divergent opinions on the solutions. For instance, the Civil Society Scaling Up Nutrition in Nigeria (CS-SUNN) advocated less for RUTF and more for Infant and Young Child Feeding (IYCF), while the UNICEF and partners thought RUTF as important (KI 1). This is similar to the divergence in interventions in nutrition research where some focus on preventive (Penny et al, 2005; Ruel et al, 2008) and others on curative approaches (Ciliberto et al, 2006). This establishes undue tensions regardless of the fact that they are complementary to one another (Isanaka et al, 2009).

Analysis of problem stream identifies several factors that has promoted or hindered the ascendance of malnutrition on the state's agenda. Credible indicators quantified the severity of stunting in Kebbi State but failed to do so in Anambra State. In the problem stream, the first important factor that pushes the acceptance of a given problem is the availability of indicators and its acceptance and a noteworthy indicator. The complexity of indicators also imply that disagreement might ensue in its use, that has not been a problem with nutrition. However, the indicators could, in addition to numbers, be represented in qualitative forms to elicit emotions from the political class. Setting nutrition as a problem appears to be the challenge of Anambra State and maybe by extension the southern region, which has a lower prevalence of malnutrition in the country. In this case, framing as a community disregarding prevalence and focusing on impact becomes vital. Global health policy framing arguments determine how effectively a subject is positioned (Labonté & Gagnon, 2010). In a state like Anambra, the identification of malnutrition as a problem is vital igniting the process of generating political commitment to malnutrition in the state. Thus framing the state's malnutrition prevalence according to WHO severity classification would be an added advantage, while the state average at 18.4 percent is low, some LGAs present with above 20 percent and those have medium malnutrition severity and thus should be addressed promptly (WHO, 1995b).

Media framing was non-existent in both states, thus public attention was not the issue. It has been found that even parliamentarians follow media issues and sometimes adopt them as theirs. The lack of malnutrition representation in the media is an issue in framing and urgency of malnutrition in Nigeria. The value of media must also be taken with the understanding of the short-term attention

that the media gives and quickly moves to the next breaking story. Thus, multiple short-term attention over a given period would drive the nutrition narrative.

Donors kept the attention of the Kebbi State government on the nutrition menace in the state with constant visits and programmes. Besides ascertaining an issue as a problem, there is also the need to keep the problem from fading from government's interest. Two things make a problem fade either the solution or the failure of the solution. In Nigeria, while malnutrition has very gradually reduced, it has nowhere been resolved or solved, in this case, the slipping of malnutrition from the table of discussion might be a result of failure. Which can partly be attributed to the framing of malnutrition solutions as only nutrition-specific and thus delineating it from the contribution that nutrition-sensitive sectors can bring in.

b. Policy stream

Clear policy alternatives/policies: A clear well-thought-through and coherent state nutrition strategic plan of action exists in both states. Following the consultations that were involved in developing the plans, both states think the plan is technically sound and financially feasible if the government is committed. Both states had a costed plan of action identified as technically feasible and financially sustainable. In Kebbi State, some LGAs (Dandi, Gwandu, and Maiyama) also had a costed plan of action for nutrition programmes which was launched in December 2017 as an exit plan for DFID-funded Working to Improve Nutrition in Northern Nigeria (WINNN). In Anambra State, the costed plan of action was at the printers for production. In Kebbi, no single person was the policy entrepreneur for the policies, instead it was the Ministry of Health (KWC). The existence of the strategic plan of action led the participants to agree that policy advocates were cohesive. In Anambra State though, the participants from the Ministry of Environment argued for the inclusion of the Ministry of Environment as a member of the SCFN, given the impact of WASH on malnutrition incidence (Dangour et al, 2013; Ngure et al, 2014).

Policy entrepreneur: Anambra State still identified the permanent secretary of the Ministry of Budget and Planning as the policy entrepreneur who has been influential in promoting nutrition policies, especially with the revitalisation of the SCFN (AWC). In Kebbi State, they think the foreign development partners wield that power as they advocate the commissioners and the governor himself to release funds for nutrition (KWC). In Anambra State, the first lady and commissioner of Health were identified as policy entrepreneurs (AWC, AI 1).

Cohesiveness of policy community: Using the SCFN as a policy platform, Anambra State ensured that the policy advocates were cohesive. In contrast the somewhat cohesive situation in Kebbi State, which was mainly a function of an inactive SCFN.

Internal framing (how policy community understands the problem): In both states, state nutrition actors frequently agreed that food and nutrition is framed as an issue of food security and poverty in Anambra and Kebbi states respectively. With regards to the framing of nutrition in the states, the nutrition experts and actors in both states agreed on the nutrition indicators, also on nutrition as a function of poverty and on the responsibilities of the different ministries. Though they agreed that multisectoral approach implementation was an issue.

The policy community drive activities in the policy stream. The policy community is made of advocates who share an interest in issues and propose policy solutions (Kingdon, 2011). The level fragmentation that exists within a given policy stream might also affect the policies ultimately leading to policy fragmentation. The ideal would be a lack of a fragmented policy stream to ensure that policies are given a common outlook and instability is avoided.

Activities in the policy stream in the two states include the establishment of the guiding institution - SCFN, led by an emerging policy advocate in Anambra State. However, the technical policy community seems not cohesive.

The role of participants outside the government position, for instance, the interest groups, researchers, academics, media, political parties, groups, and traditional rulers fall within the space of lobbyists or advocacy groups, and while some will maintain close relations with the government, they are still outside the formal decision-making structure of the government. Advocacy group's activity varies, and their influence also varies according to those lines, they might affect agenda, or alternatives being considered by policymakers. The tension with the framing of malnutrition in Nigeria as a nutrition-specific solution could only be through the effort of the most active malnutrition advocacy groups, e.g. UNICEF. These groups mostly advance the agenda to feel adequate. An alternative to this in both states might be the promotion of nutrition-sensitive interventions especially when budgetary commitment for nutrition-specific interventions are not achieved. Resources also affect the advocacy of the group and the agenda they support.

Groups with the least financial resources tend not to have their agenda implemented. Researchers and academics are also prominent in the sphere of the framing of problem and solution. Ideas from the academic field tend to spur up the discussion, or at the very least, provide evidence on the issue at hand. The second way that the influence of the research world comes into play is when the researchers are appointed as consultants to government programmes or appointed as part of the government. The current nutrition gap in Nigeria includes the generation of knowledge, what knowledge on nutrition-sensitivity and malnutrition, in general, are generated from researchers and academics, does the new knowledge solve or attempt to provide alternatives to the smouldering

malnutrition issues? What gaps exist in nutrition research in the country? What areas of focus are more attended to in comparison to other areas? Policymakers listen to academics when the alternatives or solutions are presented to the problem already on the table (Kingdon, 2011). In Nigeria, the Nutrition Society of Nigeria is the society for all nutritionists, including academics, and they can assume the role of aggregating studies and reviews and utilise it for advocacy to the state governments.

Another important principle for policy entrepreneurs is the incentive that motivates them, which could either be material or non-material (Hopkins, 2016; Bakir & Jarvis, 2017). These range from personal interest such as job promotion, or influence in one's career as is the case of mid-level staff in different ministries. Alternatively, it could be non-material incentives such as their need to promote their values and shape the policy. However, these principles do not enable policy entrepreneurs to succeed or fail. The criteria for success or failure depends on technical feasibility, value acceptability, and anticipation and mitigation of future constraints. In the two states, the proposed policy solutions, especially when torn between nutrition-sensitive and nutrition specific, must depend on technical feasibility, value acceptability, and anticipation of constraints.

c. Political stream

Political transitions and openings: The most significant opportunity for getting political commitment to nutrition existed in Kebbi State that are scheduled to have all elections in 2019, while only legislative elections will be held in Anambra. For opportunities offered through political transitions in Kebbi State, both legislative and executive elections would be held in 2019, while in Anambra State only the legislative elections will be held in 2019, with the executive in 2021.

External influences: The states received the opposite ends of technical and financial support from development partners and international agencies. While Kebbi received much external support, Anambra State received very little. Compared to Anambra which received very little funding from UNICEF, the bulk of nutrition funding in Kebbi came from counterpart funding.

Competing priorities: Kebbi participants believed the governor loved education even when he was a senator and thus if the government had \$5 million it would invest in education (KWC), and Anambra State participants thought the government would focus on agriculture (KWC). When merged with agriculture as food and nutrition, then it was a priority in both states considering the hefty investment both states are making in agriculture. However, only Kebbi is interested in maternal and child health as an initiative in the state.

The political stream is one stream that is outside the influence of the nutrition world and malnutrition prevalence. It begins with the national mood/country or state climate, and public opinion difference,

among other factors. At the time of data collection (2017), the Boko Haram was stilling operating with added tension from the alleged herdsmen, and farmers clashes in addition to the recent Biafra clash. These occurrences have sunken national moods, while they might necessarily displace the current issues, it has a way of deterring the advocates and policy entrepreneurs from addressing issues that need attention. It demotes other issues on the agenda of all involved. This stream is the highest inhibitor of the policy process (Kingdon, 2011).

Coupling of the three streams would lead to nutrition being perceived as ripe for being on the agenda. Currently, nutrition is gently ascending the agenda in states, more so in Kebbi than Anambra State. But the said ascendance and the surrounding narrative is that Nigeria does not support nutrition-sensitive framing. The current framing is devoid of alternatives to the sustainable reduction that must be corrected for through an adequate, viable solution.

7.9.3 Stakeholder and institutional analysis

Strong supporters to nutrition in Kebbi State include the ministries of Budget and Economic Planning, Health, Education, the ruling party, All Progressive Congress (APC), UNICEF, DFID, and European Union (EU). They classified the Ministry of Social Welfare as a moderate supporter (KWC). In Anambra State, all in the Ministry of Social Welfare were strong supporters and active participants at the SCFN. UNICEF was said to have given moderate state support (AWC). The Ministry of Environment was also judged to be neutral in both states, though they agreed it was more because they were not included in the SCFN. Among the supporters in Kebbi State, only the ministries of Budget and Health, the APC, DFID, and EU had high ability to advance nutrition policy in the state. In Anambra State all the supporters except the Ministry of Social Welfare had a high ability to improve nutrition policy.

In both states, the ministries of Budget and Planning, Health, Agriculture, and Education strongly supported nutrition policies and programming in the states. The support of the Ministry of Environment was varied, while Kebbi State reported it as moderate, in Anambra State they were neutral. While the Ministry of Social Welfare strongly supported nutrition in Kebbi State, in Anambra it was said to be moderate. The support of the political parties varied too, All Progressive Grand Alliance (APGA) has been at the helms of affairs in Anambra State and strongly supported nutrition activities.

In Kebbi, the situation differs in two parts. Firstly, the current governor is of the APC, and the last one was of the Peoples' Democratic Party (PDP).

Both were said to have given strong nutrition support, through the release of funds, and fund availability was higher in the last dispensation (KI 1), but they had to factor in the current recession

that has affected national revenue, and by extension the accruing amount that are earmarked for states monthly from the federal government.

Each party had low ability to advance or block policy as a political party, given that parties in the country were without explicit ideologues (Olanrewaju, 2015). Social Welfare and Environment were also thought to have low ability to advance policy with regards to nutrition. In both states, foreign partners and UN bodies were in support of nutrition at various levels. With minimal presence by UNICEF in Anambra and a possible collaboration with WHO, they had high ability to advance policy. In Kebbi, the UNICEF, DFID (just ended programme) and EU all support nutrition in the state. Also, this support is backed with high ability to advance policy on nutrition.

The SCFN is backed by the National Food and Nutrition Policy of 2016, to be established and located in the Ministry of State Planning (or equivalent) with members drawn from relevant ministries, departments and agencies of government, as well as representatives of the tertiary institutions dealing with food and nutrition (MBNP, 2016). The mandate of the SCFN includes:

- (i) Providing technical and professional assistance to the Ministry of Budget and Planning on food and nutrition issues in the state,
- (ii) Ensure adequate financial budgeting and release of funds allocated for development plans,
- (iii) Proposing and reviewing programmes with potential impact on food and nutrition issues,
- (iv) Ensure the effective implementation of relevant sectoral policies and programmes,
- (v) Advise on the formulation of appropriate strategies for programme monitoring and evaluation,
- (vi) Support the State Ministry of Planning on ongoing advocacy on food and nutrition,
- (vii) Assist the State Ministry of Planning to set up and manage a database of nutrition activities.

The SCFN Secretariat is meant to be a division in the Ministry of Budget and Planning, chaired by the permanent secretary of the ministry, with the state nutrition officer as the secretary and fully staffed with adequate material and human resources (competencies such as food, nutrition, and M&E expertise). The Secretariat services the SCFN meetings link appropriate departments in the Ministry of Budget and Planning and undertakes other functions assigned by the ministry.

For the LCFN is meant to be established and located in the office of the LGA vice chairman, made up of relevant departments and agencies of government and representatives of food and nutrition CSOs. Their mandate includes providing necessary technical and professional assistance to support the Secretariat on food and nutrition programme implementation, ensure adequate financial provision

and release of funds in LGA development plans, propose and review programmes that have impact on food and nutrition, ensure effective implementation of policies and programmes by relevant sectors, implementing appropriate strategies for monitoring and evaluation, support the office of the vice chairman in food and nutrition advocacy, manage and maintain the database of nutrition activities, and lastly coordinate nutrition programme implementation at the LGA

Table 7.6 jointly displays findings from the qualitative and quantitative arms of this phase.

Table 7.6 Joint display of political commitments: subscale description and comparison

Domain	Radar point	Stakeholder's experience (evidence from workshop notes)	Stakeholder's experience (evidence from the key informant interviews)	Room for improvement	
Prioritisation of nutrition					
Expressed commitment.	Kebbi	85.7 percent.	Speeches of the Director of Child Development, Ministry of Social Welfare. Inauguration of boreholes in the water ministry.	MNCHW. Medicaid rally.	Stated commitment from not only the governor and his delegates but also by the commissioners and the permanent secretaries of the various nutrition-sensitive sectors. Especially agriculture and education.
	Anambra	71.4 percent.	MNCHW. Ministry of Education Speeches.	MNCHW. Any activity of the Ministry of Health. The state utilises all opportunities to present all aspects of health being that funding is limited.	Same as above. Especially agriculture and social welfare.
Institutional commitment.	Kebbi	66.7 percent.	Inactive SCFN.	Slumbered SCFN	Reviving the SCFN. Budgeting for the SCFN to ensure meetings are held irrespective of donor funding.
	Anambra	66.7 percent.	Functional SCFN.	Functional SCFN	Sustaining current momentum. Ensuring that nutrition awareness steps down from ministry heads and representatives at the SCFN to the implementers and other actors.
Budgetary commitment.	Kebbi	75 percent.	Funding available, though nothing in the budget can be funded. Funding support of the donor partners keep the projects going.	Commitment changes. RUTF was funded last year and this year another focus has been chosen.	Sustained budgetary commitment irrespective of donor funds.
	Anambra	33.3 percent.	Average funding available.	Funding mostly late.	Getting the buy-in of the governor, who is the biggest veto power for funding.

				The commissioner of the health ministry could push for funding to be released through “memos” to the governor.	
Policy window of opportunity					
Problem stream.	Kebbi	80 percent.	No media awareness. No visible civil society. Traditional rulers as influencers. A high-powered panel of foreign donors held a workshop for the governor is the most significant focusing event.	The high stunting prevalence in Kebbi State was a concern to stakeholders. Few CSOs on the ground but disconnected and inconsistent.	Mobilising local media houses to pay attention to nutrition. Sustain the current awareness of high malnutrition prevalence in that state.
	Anambra	60 percent.	No media awareness. The SCFN chairman as the primary influencer. Visit of SCFN to the field (schools and rural areas) is the focusing event for nutrition.	The marginally lower stunting rate in the state has clouded the severity of stunting in the state. The CSOs are based in malnutrition hotspots but lack the power to influence policy.	Establishing that despite low malnutrition prevalence in the state, efforts need to be on the ground to eliminate malnutrition and prevent increasing overweight/obesity. Mobilising local media houses to pay attention to nutrition. Coordination of the grassroots CSO to be able to influence policy.
Policy stream.	Kebbi	75 percent.	Published strategic plan of action for nutrition. No single individual influences policies – that onus goes to the foreign donors.	Non-cohesiveness among policy advocates with regards to solutions for acute malnutrition. Ministry of Health as a policy entrepreneur.	
	Anambra	100 percent.	The strategic plan of action ready to be printed and then launched. The chairman of the SCFN is the main driver of nutrition policies.	The first lady and the commissioner of health as policy entrepreneurs for nutrition.	
Politics.	Kebbi	100 percent.	The open window during the 2019 elections.	Maternal and child health as a government priority.	Advancing nutrition-sensitive education policies in the state.

			Massive funding from external donors. Governments' priority is education.		Policy advocacy to the legislators in the states on narratives to advance nutrition in the state.
Anambra	50 percent.	A minimal open window in the 2019 legislative elections and the current governor's 2 nd term swearing in. Very minimal funding from foreign agencies. Government's priority is agriculture.	Agriculture as a government priority.		Advancing nutrition-sensitive agricultural programmes in the state. Policy advocacy to legislators in the states on narratives to advance nutrition in the state.

Stakeholders/Institutional Analysis

Interest group mobilisation.	Kebbi	100 percent.	Strong supporters include APC, UNICEF, DFID, EU, ministries of Budget, Health, Agriculture and Education. The Ministry of Social Welfare is a moderate supporter. The Ministry of Environment is a neutral party.	Ministry of Environment categorised as supporting nutrition moderately. The past government might have been better disposed to nutrition though that government had a higher allocation from the Federal Government.	Addition of the Ministry of Environment as a member of the SCFN from the federal level down to state and LGA. Sustained donor's activity.
	Anambra	100 percent.	Strong supporters include ministries of Budget, Health, Agriculture, Education and Health. Ministry of Environment as a neutral party. UNICEF provides moderate support.	Ministry of Environment is a neutral party with regards nutrition in the state. Ministry of Social Welfare provided moderate support for nutrition in the state.	Addition of the Ministry of Environment as a member of the SCFN from the federal level down to state and LGA. A return of UNICEF region to the South East.

7.10 Policy implications

Table 7.7 presents the strengths, weakness, opportunities, and threats to the political economy of nutrition in both study states.

Table 7.7 SWOT analysis of the political economy in Kebbi and Anambra states, Nigeria

	Stunting prevalence	Strengths	Weakness	Opportunities	Threats
Kebbi	60.6 percent.	High level of attention paid to nutrition in the current administration.	High dependence on donor agencies. Inactive state Committee for Food and Nutrition. Very little media attention on malnutrition.	Pairing nutrition firmly with nutrition-sensitive sectors. Employing the first lady as an active advocate.	Withdrawal of donor funds. Focus on only nutrition-specific interventions as the pathway to adequate nutrition.
Anambra	18.4 percent.	Active state Committee for Food and Nutrition.	Nutrition not viewed as a problem. Very little media attention on malnutrition.	Pairing nutrition firmly with nutrition-sensitive sectors with agriculture. Advocacy to the governor on nutrition.	Persistent denial of malnutrition as a prominent issue in the state.

7.10.1 Kebbi State

Regarding political commitment and prioritisation of food and nutrition policy, Kebbi State had a high budgetary commitment (to nutrition specificity) along with a somewhat higher than average

institutional and expressed commitment. Primarily, Kebbi's availability of sufficient funds needs to be understood considering the support of donor agencies for the numerous programmes in the state. For instance, the UNICEF supports the MNCHW in addition to funding from the state and local governments. The EU provides funding for RUTF in the state for a programme implemented by UNICEF. Thus, the availability of funding may be a reflection that the financial support of donors is impactful. The state previously had strong SCFN that other states had to come to observe and learn best practices. Changes in members and probably reduced prompting and funding from UNICEF to hold meetings has reduced the number of meetings the SCFN has had in the preceding year. Strengthening institutional commitment might benefit nutrition further in the state.

As stated in the introduction, this phase set out to explore the nutrition agenda setting sphere in Kebbi and Anambra states, Nigeria and to determine windows of opportunities for nutrition in the states. A convergence of problem (problem recognition), policy (policy formation and refining), and political (national or sub-national mood swings, election results, shifts in partisan or ideology, interest group campaigns) streams open up opportunities for policy entrepreneurs to use open policy windows to push and sustain issues in the governments agenda (Kingdon, 2003, 2011). This study analysed the windows of opportunity factors that have enhanced or hindered nutrition policy and programmes. Positive elements existed in the problem, policy, and political streams of both states. Their sufficiency to drive the nutrition agenda are discussed.

For the window of policy opportunity, in Kebbi State the prevalence of malnutrition in under-five children has been established as a significant problem. Opportunities exist for the media to improve the coverage of nutrition prevalence and issues in the state to draw public attention. In the policy stream, while the policy community was cohesive and agreed on ministerial responsibilities, the advocates lacked cohesion. This contrasts with the lack of cohesion in the policy community that has been cited (Heaver, 2005; Ndiaye, 2009). The state had a well-thought strategy for nutrition. In the coming elections, there are open windows to drive down a case for nutrition in the state, in addition to the open window policy. Effective advocacy in establishing nutrition as a problem would help propel efforts for eradication of malnutrition in the state. Pelletier et al (2011) found that, that did not consistently lead to attention to nutrition. In this study, through the political commitment and the related opportunities, attention ensuing is driven by external resource provision.

The prominence of donor funding for nutrition programmes and policing in Kebbi State confuses the picture of what government activities vs. donor agency activities comprise of Donors are more likely to work where commitment to the matter exist already to make progress and have an impact (Lieberman, 2009). Thus, they are likely to ask for matching funds from the governments. The consequence of this donor-government dynamics is that donors might bring in most of the funds and

implementation with their human resources while the government contributes a portion but takes the credit for such efforts.

Despite that, the states (ORIE, 2013) do not categorise any ministry as an opposer of nutrition, but further discussion revealed that ministries classified as actively supporting nutrition, lacked budgetary and stated commitment to nutrition issues and in most cases are unaware that their ministry is a nutrition-sensitive sector. This thus reveals bias on the side of the participants, similar to the finding of Fox et al (2014) where they assessed ten countries.

The researchers' findings are similar to the WINNN governance report for Kebbi State, the state budgeted and released 175 million naira for nutrition (nutrition-specific) interventions. LGA committed N100, 000 but it was not released. SCFN and LCFN were functional but did not meet quarterly; no active CSO was engaged in nutrition work (ORIE, 2015). State allocation usually comes from the federal funds, but the decision on how to spend is made at state level. The state governor's office decides on budgetary allocation (ORIE, 2013)

Despite the plethora of policies and plans, government coordination and implementation are weak. Thus, the nutrition policy and programming environment are led by government partners (UNICEF, DFID, USAID) and NGOs (Save the children, Action against hunger). This might stem from the limited recognition of poverty reduction, national development, and nutrition (ORIE, 2013).

7.10.2 Anambra State

In Anambra State, the most pivotal strength is the presence of strong institutional commitment which exists as the state has a functioning SCFN. This though did not reflect in the budgetary commitment to nutrition. The peculiarity of this state stems mainly from a marginal undernutrition profile that stands a chance of sliding if enough attention is not given to nutrition. A stated commitment exists for nutrition; however, the possibility exists that such statements are rhetoric of the programme manager who writes the speeches for the high-level official. That would explain the low budgetary commitment despite the evidence of stated commitment. The underfunding may generally reflect underfunding and late release of funds, rather than total unavailability. That said, the SCFN has just been resuscitated, and if the current momentum is sustained, the committee can help mobilise funds for nutrition in the state through the budget. The release of such budgeted funds still depends on the prerogative of the executive, mainly the governor, but with the persuasion of the commissioners of the respective ministries.

As a problem, nutrition appears to be placed as lower priority in the state. However, the state is building the policy stream with the current development of the state nutrition plan. This plan, if not backed with empathy stemming from the awareness of nutrition problems, might be hard to implement. This might be similar to the five-country case study by Pelletier et al (2011) that found that policymakers are more swayed by the extent of the problem than a coherent, evidence-based policy. This appears to be the case in this state, where stakeholders must generate interest without the explicit help of foreign partners or donor agencies. The political stream has minimal opportunity to generate the will from the governor given that he has just been re-elected, but political support could be garnered through the legislative. Also eliciting a promise of renewed commitment after swearing-in can also be an angle of opportunity.

State stakeholders from different ministries support nutrition in both states. There was extensive support for nutrition with no opponents opposing the raising of nutrition in the agenda. This could be an opportunity to mobilise continued support for nutrition in Anambra State. However, when funding is lacking, and in the absence of donor agencies, the SCFN slides back. In Kebbi State, their attention to the SCFN was previously high, but that has dropped. The SCFN can be the main institution that brings in all nutrition-sensitive sectors and helps sustain nutrition in the agenda.

That said, the states do not categorise any ministry as an opposer of nutrition, but further discussion revealed that ministries categorised as active supporting lacked budgetary and stated commitment to nutrition issues and in most cases are unaware that their ministry is a nutrition-sensitive sector. This thus reveals bias on the side of the participants, similar to the finding of Fox et al (2014).

7.10.3 Implication of the findings on political will on mainstreaming nutrition-sensitivity

The analysis above clearly shows that different kinds of strategies must be employed to elicit the various kinds of commitment from the states. For instance, budgetary commitment, especially about funds release for nutrition, lies at the doorstep of the governor, thus convincing the states and advocating for these funds to the seat of the governor directly have better chances of eliciting a positive response. In these advocacies, carrying the commissioners and permanent secretaries along would help to increase the supporters of the advocacy.

That said, institutional commitment is obtained at the foot of the senior government officials, specifically the permanent secretaries and directors of the various department who are members of the SCFN. These government officials have the power to institutionalise nutrition, through the creation of nutrition desks/department, assigning nutrition-related responsibilities and are even part of the annual budget development and can ensure that nutrition budget is established in each ministry.

Depending on what obtains in the state, expressed commitment can lie with the mid-level, senior government officials or offices of the governor and first lady. To illustrate further, if the governor or the first lady are reading from speeches, the power of focusing on nutrition lies with the speechwriter. In Anambra State for instance that then becomes the mid-level ministerial staff, but when the governor speaks by heart, then he speaks from conviction and passion and belief. The same applies to the commissioners and permanent secretaries. That does not; however, delineate the mid-level staff from a role in political commitment, they have a role in ensuring that institutions and the programmes they design are implemented adequately. What seems to be lacking in both states is the vertical integration in all ministries, which is needed to drive down nutrition-sensitive practices from programme design to implementation in the field.

7.11 Conclusion

Opportunities exist for strategic framing and advocacy of the nutrition profile of the states, especially using the local state media. The existence of institutional coordination committees made in different sectors is appropriate for driving commitment to nutrition actions, though this can be overshadowed by individual sectoral activities.

The third domain of MNIA, political commitment was explored in this chapter. There were variations in the political commitment in the two states, mirrored in the budget allocation and donor involvement. The main driver seems to be the severity of malnutrition and the perception of its existence by senior government officials.

CHAPTER 8

8 ROADMAP DEVELOPMENT AND VALIDATION

Abstract

This chapter proposes a roadmap for addressing contextual factors in malnutrition reduction and the prevention and describes nutrition-sensitive interventions that operationalises this roadmap.

This dissertation included assessments of the three domains of the Mainstreaming Nutrition Initiative Assessment framework in three phases: (1) small area estimation of stunting, (2) process evaluation of nutrition-sensitive interventions, and (3) political commitment assessment of nutrition in the study states. The mainstreaming nutrition initiation framework guides this work into articulating how each domain affects nutrition in the study state and is used to develop an interventions matrix.

State context factors are evident in the distribution of malnutrition (e.g. high prevalence or gap among LGAs), in the implementation of nutrition-sensitive interventions (e.g. access to early childhood education) and in political economy to nutrition (e.g. presence of external funding agencies). Context is shaped by economy, population, religion, and poverty which impact everyday lives. A roadmap was developed and validated.

By highlighting changes and interventions by which each state can best reduce malnutrition, and how these interventions differ per state, it becomes possible to ensure that the right interventions are in place and maximum efficiency achieved for the population. The proposed roadmap for mainstreaming nutrition-sensitivity in Nigeria can achieve this.

8.1 Introduction

Child malnutrition remains high among under-fives in Nigeria, despite programming and policy interventions with a country-level stunting average of 37 percent (NPC and ICF, 2014) which is high according to WHO malnutrition prevalence severity (WHO, 1995a). The variation in malnutrition prevalence in the Nigerian States makes it even harder for adequate programming, with the two states (Anambra and Kebbi) used in the study at 18.4 percent and 60.6 percent respectively (see Chapter 2 for details on within state variation).

Successful approaches need the input and actions of multiple sectors and stakeholders as indicated by the UNICEF conceptual framework as argued in this thesis in Chapter 2. Factors within the different causal levels of malnutrition exert influence on under-fives malnutrition and health outcomes. The underlying and basic causal levels always seem detached from their influence on malnutrition reduction. Thus, these other casual levels are the targets of this chapters output. The study's interest is mainly in agriculture, education, environment and social welfare sectors.

A major aim was to develop a roadmap for mainstreaming nutrition-sensitivity that address contextual issues and in turn enhance the effectiveness of interventions. The focus was on varying malnutrition profiles among other variables in addition to the influence of all the MNIA domains, necessitating such contextual development. Estimating stunting was not the study's main aim, rather it was an exercise that showed the inequality in the LGA burden and that targeting was important.

The MNIA, as discussed in Chapter 3, is operationalised in the design of the roadmap using data from all the phases of the study; qualitative and quantitative research. The SAE findings were used in exposing LGAs that have the highest burden of stunting. Though in some states such as Kebbi all the LGAs had a very high burden of stunting. As will be shown in the roadmap, the interventions are defined to be contextual in three ways, targeting LGA of high burden, implementation of interventions and political economy of the states.

This chapter describes the roadmap developed for mainstreaming nutrition into nutrition-sensitive sectors in Nigerian states. The roadmap has a multisector and a multilevel approach, utilising nutrition-sensitive sectors to prevent and control malnutrition. It is a document or action plan that state-level stakeholders in the study states can consult when mainstreaming nutrition actions into existing programmes. It translates evidence-based approaches for changing operations, programmes and political commitment in promoting the incorporation of nutrition as a concept in these sectors at state level. In addition, to strengthening the capacity of the state stakeholder with the know-how of mainstreaming nutrition. The roadmap also comes in handy through replication and adaptation of strategies for other states who wish to embark on such nutrition-sensitive mainstreaming. It presents

an implementable solution in a bid to ensure that malnutrition is addressed in a sustainable manner, to prevent malnutrition for children under five years.

This chapter utilises the implications from previous chapters and makes rigorously argued recommendations based on findings, supported by literature.

8.2 Contextualisation in public health

Context as a term is broad with meanings and implications cutting across epistemologies (Edwards and Ruggiero, 2011), engaging from etiology, efficacy, effectiveness to study settings. Luoto *et al.* (2014) has reported on the limitations to reporting context in studies, with subsequent challenges during implementation of interventions. This dissertation focuses on importance of context both to the replicability and scalability of interventions. Replicability is the dissemination of interventions without further adaptation while scalability is an increased reach of an intervention (Edwards, 2010). Varying political, personnel, population characteristics and infrastructural factors affect scalability (Edwards, 2010).

The field of nutrition interventions are notable for effectiveness studies (Brace, De Andrade and Finkelstein, 2018; Whatnall *et al.*, 2018). Many of these interventions are not scalable, given the level of resources they require. It is problematic to simply scale-up or replicate even the most efficacious and effective studies. Advocacy is being made for testing and adaptation to account for complex environments (Edwards and Barker, 2014). Implementation context does not include the intervention characteristics alone but also draws from the implementing environment such as leadership and communication strategies. Accounting for some or all these variables ensure that interventions have higher chances of success.

8.3 Justification for the development of a Roadmap

Nutrition-sensitive programming is one of the ways through which innovative preventive programmes can be launched, and this is evidenced by the impact of agriculture (Du *et al.*, 2015), WASH (Cumming & Cairncross, 2016), education (Alderman & Headey, 2017), and social welfare (Paes-Sousa, Santos & Miazaki, 2011). The multisectoral nature of malnutrition provides a unique opportunity for addressing this issue through different sectors, giving rise to different narratives, all with the aim of reducing malnutrition. In Nigeria, the governance structures at state level are closer to the grassroots. Focusing on current state nutrition programming and policy-making, the concept of contextualisation is introduced, taking cognisance of each state's resources and nutrition profile. The resultant roadmap

of this study hopes to achieve all these: contextualised, nutrition-sensitive and multisectoral mainstreaming of nutrition actions.

8.4 Objective of the phase

The objective of this phase is to develop and validate a roadmap for mainstreaming nutrition interventions in policies and programmes.

8.5 Development of a Roadmap for mainstreaming nutrition-sensitivity

The MNIA has combined the strength and perspective of three disciplines/themes in creating the contextualised roadmap for each state that addresses malnutrition. Beginning with epidemiology, the study borrowed the richness of epidemiological research to document the burden of stunting at the LGA level in the state (Wilks, 2015). The methods applied here are rooted in economics which have applied small area estimation to investigate income and poverty (Rao, 2003).

Secondly, incorporating guidelines of nutrition-sensitivity (Ruel, Alderman & Maternal and Child Nutrition Study Group, 2013), and the different pathways that link agriculture to nutrition (Girard et al, 2012; Ruel, Quisumbing & Balagamwala, 2018), social welfare to nutrition (Freeland & Cherrier, 2015; Spray, 2016), education to nutrition (UNICEF, 2012; Hamadani et al, 2014) and WASH to nutrition (Concern, 2013; Dangour et al, 2013; Wixted, 2015). This phase focused on operational pitfalls that influences the impact of the interventions on malnutrition. Implementation of programmes has been shown to predict health programme outcomes, including nutrition (Brownson, R., Colditz, G., Proctor, 2012; Lobb & Colditz, 2013; Olney et al, 2013; Menon et al, 2014; Gillespie, Menon & Kennedy, 2015; Tumilowicz, Neufeld & Pelto, 2015; Wensing, 2015).

Lastly, the development incorporated the use of political economy analysis, which has been encouraged as an explanation, or missing link, to malnutrition reduction success (Field & Levinson, 1975; te Lintelo & Lakshman, 2015; Balarajan & Reich, 2016a). The MNIA proposed the integration of all three domains in understanding and designing interventions (Menon et al, 2011).

Based on the literature and the findings from Phases 1, 2, and 3 a guiding conceptual framework (Addendum 1-3) was constructed from where a contextual roadmap for both states was adapted (Addendum 4-8). This roadmap creates an environment in states for targeting LGA's. The roadmap also identifies implementation factors that independently affect the outcomes of interventions. Furthermore, political economy factors that modify the impact of implementation are also defined.

The general roadmap skeleton defining the role of contexts in nutrition mainstreaming might be applied to other states and even other disciplines. Obviously, the epidemiology, operational and political variables would change.

The study has thus used the MNIA framework to conceptualise modifiers, mediators, outlier across the epidemiology, and operational and socio-political domains (Menon et al, 2011). Target LGAs have been listed in Table 8.1 for each state. Implementation factors include programme input, such as a wider M&E system for child registration that tracks children until five, focus on under-fives, pregnant and/or lactating women, and programme implementation recommendations such as the integration with other sectors and wider coverage for WASH improved delivery. Fidelity to interventions, while important, depends on the local organisation's capacity, size, and circumstances (Hoekstra et al, 2017). Organisation related factors includes quality and training of ECD teachers, extension agents, and environmental health officers. Accommodating religious values in the Kebbi State (Padela et al, 2012) includes the active recruitment of females for these posts.

These implementation factors, and the many others in the roadmap, are shaped by the political economy of nutrition in the states. Expressed commitment, budget, institutions, and advocacy groups are important contributors that influence interventions in nutrition. Identifying the difference in commitments can inform decision making on trade-offs among interventions. Understanding these political economy factors are paramount for effective nutrition advocacy.

Table 8.1 Some of the research findings that informed the roadmap

Phase and methods	Selected findings
<i>Small Area Estimation of malnutrition (Chapter 4)</i>	
Findings from the study.	The study's estimations, Osgood-Zimmerman et al (2018) and the NDHS was used in the development of the roadmap.
<i>Nutrition-sensitive and potential to be nutrition sensitive assessment (Chapter 5)</i>	
Document review and key informant interviews.	Most programmes had good to excellent potentials to be nutrition-sensitive. Inadequate implementation in most programmes and sectors, except agriculture.
<i>Process evaluation (Chapter 6)</i>	
Key Informant Interviews (KII).	Numerous falter points in the programme impact pathways of the programmes. Strengthening of coordinating institutions and mechanisms.
<i>Political commitment assessment (Chapter 7)</i>	
Two workshops and key informants' interviews.	Existing political commitment mainly for nutrition-specific interventions. Higher political commitment to nutrition in Kebbi than Anambra.

8.5.1 How the roadmap was designed

The development followed five stages: normative, empirical, consensus, publishing, and implementation (Whittaker et al, 2011). Only the first three stages were applicable.

The process of developing the roadmap took into consideration the findings of all Phases (1 to 3). The nutrition-sensitive assessment identified the current and potential nutrition-sensitivity of programmes. This informed the key nutrition-sensitive principles that needed to be promoted by the ministries. The process evaluation was used to develop strategies for strengthening programme operation. The political economy analysis identified the pathway of nutrition advocacy. Figure 8.1 depicts these processes in detail and how the data were merged to form the roadmap.

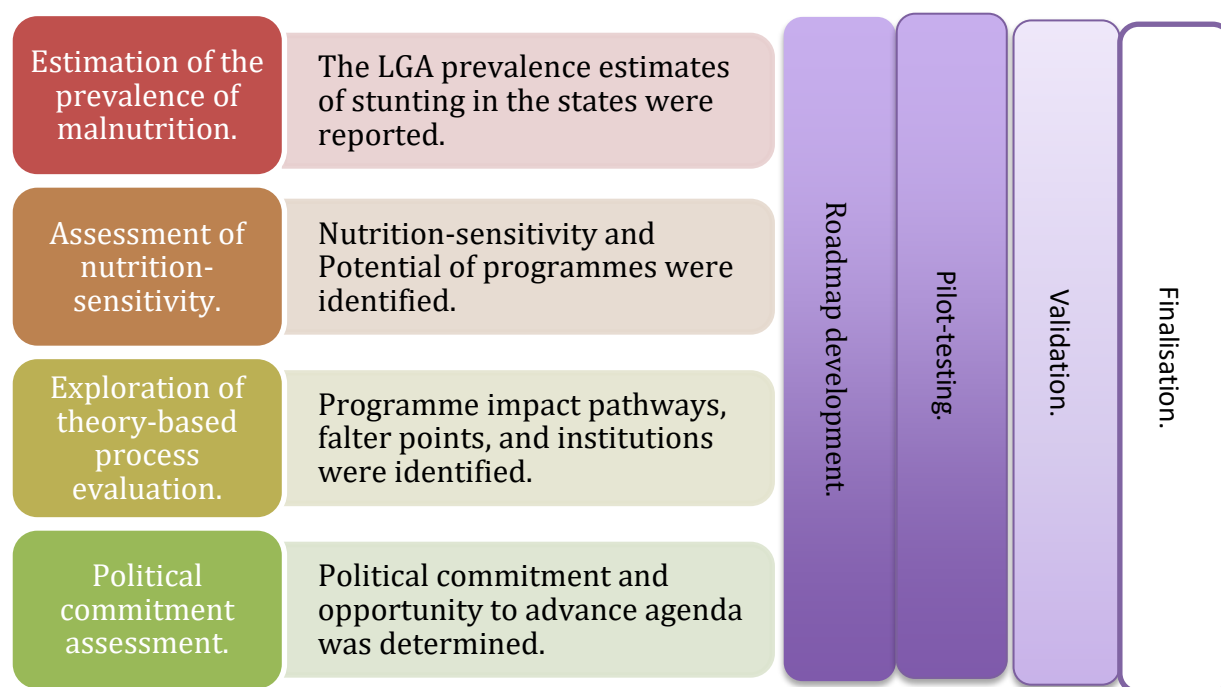


Figure 8.1: Processes employed in roadmap development

8.5.2 Rigour

The utilisation of both the quantitative and qualitative methods described increased the data credibility, aiding the researcher in understanding the complexity of context-specific nutrition-sensitive mainstreaming in the states (Baxter & Jack, 2008) and setting priorities that allow targeting through the established programme operations and pathway.

8.5.3 Expert content review

Three experts were involved in the revision of the roadmap. Content reviews were mainly hinged on literature and empirical findings. Major revision made at this stage were the inclusion of the indicators to the mainstreaming table and editing to make the roadmap concise. The experts reworked the roadmap till version 3.

8.5.4 Pilot testing

The roadmap was first pilot-tested among similar stakeholders in South Africa. The same questions that would be employed in validation were used in pilot-testing. Ten stakeholders were invited for pilot-testing but only two returned the questionnaire and roadmap. The responses to the pilot-testing were incorporated and used to refine the instrument to validate the roadmap. Changes were made mostly to the validation instrument. Final revisions did not violate the earlier roadmap assumptions, modifications after the pilot testing was termed version 4. Summary of changes from the expert review and pilot testing are shown in the table below

Table 8.2: Summary of changes from expert review and pilot testing

Stage		Comments	How was it used
Expert review N = 3	Version 1-3	Framing of core of concepts Need for a generic table Utilization of nutrition indicators	Reframing of core concepts to better and common word Inserted a generic table for other states Addition of nutrition indicators such as low birth weight etc
Pilot testing N = 2	4	Questions and recommendations regarding unclear validation questions Questions were merged as they were repetitive	Validation questions reframed.
Stakeholders Validation N = 9	5	Identification of unclear sentences	Clearer sentences provided

8.5.5 Feasibility validation of the roadmap

a. Validation methods

Using purposive sampling, a director was chosen from ministry, preferably one in charge of the process evaluation programme, for the operational validation of the roadmap in addition to the State Nutrition

Officer (SNO) who serves as the secretary of the SCFN. The target was 10 per state. A total of 9 stakeholders (5 in Anambra State and 4 in Kebbi State) completed and returned the validation questionnaire. The roadmap was validated by participants using the validation matrix adapted from Bowen et al (2009). The validation matrix was amended based on the outcome and shape of the roadmap (see Appendix 14). This step becomes vital given that products and processes need validation when process output cannot be verified by implementing, monitoring and evaluating an innovation. The operational validation attempted to verify key components of the “develop a roadmap in each state”.

The validation aim was to explore if the developed roadmap will function as intended once placed in the stakeholder's environments and assess the roadmap's likelihood for success in mainstreaming nutrition initiatives in the states. The validation tool was self-administered, the directors were given the roadmap and the validation matrix. They commented on the acceptability, demand implementation, practicality, and potential buy-in of the developed roadmap.

Data from the validation process was arranged in the matrix and matched with the responses of each participant. Interpretation and synthesis of responses about feasibility, practical implementation, and the likelihood of political adoption of the roadmap were done via deductive analysis. Negative responses implied the likelihood of the roadmap being misunderstood and unlikely to be adopted by government officials.

b. Validation results

All participants showed adequate understanding of the roadmap and other sections, as seen in the scores given in Table 8.3 Qualitative and *quantitative validation* results (n = 9) Responses regarding the translation of the roadmap varied, majority strongly agreed or agreed that the result was translatable (43.0 and 43.6 percent respectively), comments on budget allocation highlighted that unavailability of financial resources as a possible impediment for the roadmap translation. About 90 percent of the respondents agree that the roadmap is implementable and will be successfully executed. All participants were willing to support the roadmap in their various ministries, though comments on political support by the executives were made frequently.

Table 8.3 Qualitative and quantitative validation results (n = 9)

	Strongly agree (per cent)	Agree (per cent)	Neutral (per cent)	Disagree (per cent)	Strongly disagree (per cent)	Qualitative quotes
Understanding	43.8	43.0	13.20	-	-	All agriculture related sections are clearly understood.
Translation	43.0	43.6	-	13.4	-	No additional cost can be seen as high for goal achievement. Budgetary allocation is usually grossly inadequate.
Acceptability	51.3	38.6	-	10.3	-	The roadmap stratifies and aligns to the ministry.
Demand for a roadmap	26.3	73.7	-	-	-	The roadmap address issues on goals, training, employment, and integration.
Implementation	-	90.9	-	9.1	-	Sections or recommendations are likely not be executed (institutional independence, develop indicators). (Staff) well trained to implement them (roadmap). The roadmap is well-articulated, and the programmes contained therein are capable of addressing the identified problem. (Implementable) with commitment and political will.
Practicality	36.4	54.6	9.1	-	-	No budgetary allocation or plan. The problem is how these will be sustained. The state has many problems to address therefore, choices will be made on which issues to address. This may take longer as funds are limited.
Integration	37.5	62.5	-	-	-	The roadmap can help the Ministry of Social Welfare to rise up to its challenges.
Political buy-in	100	-	-	-	-	Proposal should be sent to the stakeholders for a joint meeting to discuss the roadmap.

The roadmap can be concluded to be feasible and implementable. Table 8.2 above presents a summary of the comments by the stakeholders. Few editorial changes were made to the roadmap. The most significant change was strengthening the nutrition-sensitive action of agriculture and replacing the LGA stunting prevalence map with text.

8.6 The validated roadmap for mainstreaming nutrition

The roadmap presented in Box 1, consist of an introduction and tables presenting the actions (generic and state-specific).

BOX 1: Roadmap for mainstreaming nutrition-sensitive interventions in Kebbi and Anambra States

Roadmap for mainstreaming nutrition at state levels in Nigeria

1. Introduction

The long-term effect of the current malnutrition on human and state capital cannot be quantified. It is estimated that 37 percent of under-five children in Nigeria are stunted¹⁵. The long-term effects of this on human and national development is quite profound, given the impact on education, productivity, and mortality. This document provides practical suggestions as to WHERE malnutrition efforts should be targeted, WHAT programmes should be targeted to promote nutrition-sensitivity, and HOW such programmes can be strengthened further. A study was conducted that led to the development of this roadmap (Ethics No: S17/05/099). This roadmap was designed to strengthen the ability of the state-level stakeholders to engage in and monitor nutrition-related interventions, policy development, and advocacy in the state. The roadmap is intended to facilitate the integration of nutrition-sensitive actions in various sectors. The roadmap consists of different sections and can be used separately or together in assisting stakeholders towards full nutrition-sensitive implementation. The roadmap includes an action plan for nutrition-sensitive actions (Table 8.4), action plan for generating political commitment at the state level (Table 8.5) and plans specifically for Kebbi and Anambra States (Table 8.6 and Table 8.7 respectively).

¹⁵NDHS 2013

Table 8.4 Roadmap for mainstreaming nutrition-sensitive actions at the state level

Sector	Action	Critical success factors	Indicators	Sectoral input	Sectoral Output	Who	Outcome
Health and nutrition	<p>Targeting of vulnerable populations.</p> <p>Integration of nutrition with other sectors.</p> <p>Adequate implementation.</p>	<p>Funding.</p> <p>Political commitment to nutrition.</p> <p>Employing efficacious intervention.</p> <p>Coverage of interventions.</p> <p>Sustainability.</p>	<p>Low birth weight.</p> <p>Underweight.</p> <p>Increased morbidity.</p> <p>Mortality rate.</p>	<p>Nutrition indicators and objectives in programmes.</p> <p>Coverage.</p> <p>Efficacious intervention.</p>	<p>Sustainability.</p> <p>Project outcomes.</p> <p>Improved nutritional status.</p> <p>Improved women overall empowerment.</p>	<p>Ministries.</p> <p>Directors.</p> <p>Programme implementers.</p>	Improved nutritional status
Education	<p>Provision of quality ECD¹⁶.</p> <p>Produce quality ECD teachers.</p> <p>Parents understanding and support of ECD education.</p> <p>Awareness of ECD education and its significance.</p>	<p>Functional growth monitoring and tracking.</p> <p>Funding.</p> <p>Political commitment.</p> <p>Monitoring and evaluation/quality control.</p> <p>Formation of state and LGA¹⁷ integrated ECD committee.</p> <p>Child tracking system.</p>	<p>Repetition rates in primary education.</p> <p>Retention rates or grade achievements.</p>	<p>Quality teachers and caregivers.</p> <p>Functional growth monitoring and tracking.</p> <p>Cultural sensitivity.</p>	<p>Improved ECD quality.</p> <p>Improved detection of growth faltering.</p> <p>Increased enrolment.</p>	<p>State Ministry of Education.</p>	

¹⁶ Early Childhood Development

¹⁷ Local Government Area

		Alignment of Integrated ECD committee with SCFN.					
Social welfare	Labour market-based skills acquisition training. Nutrition education.	Targeting. Integration. Implementation. Monitoring and evaluation/quality control.	Productivity losses from manual activities. Productivity losses from non-manual activities.	Political commitment. Skills acquisition training/curriculum. Health and nutrition education components.	Improved skills. Improved nutrition behaviours.	State Ministry of Social Welfare.	
WASH	Develop healthy habitation. Increased citizenry sanitation awareness.	Implementation. Intersectoral collaboration. Funding. Political commitment. Formation of state and LGA environmental task force. Monitoring and evaluation/quality control.	Rate of diarrhoea. Rate of soil-transmitted helminth infections. Rate of environmental enteropathy.	Alignment of agencies and bodies. Integrate Ministry of Environment into National Committee for Food and Nutrition, State Committee for Food and Nutrition and Local Government Committee for Food and Nutrition.	Improved habitation. Increased citizen's awareness of sanitation.	State Ministry of Environment. National Committee of Food and Nutrition.	
Agriculture	Rural infrastructure development. Commodity value chain development.	Sustainability of programmes.	Women empowerment in agriculture. Income from agriculture. Own food production.	Integration. Sustainability strategies. Gender mainstreaming. Nutrition Behavioural Change Communication.	Improved nutrition delivery through agriculture.	State Ministry of Agriculture.	

Table 8.5 Roadmap for generating political commitment in Nigerian states

Audiences	Activities	Indicators	Who
Governors and Deputy governors.	<ul style="list-style-type: none"> • Invite them to a briefing on importance of nutrition. • Follow-up state champions on using their influence for malnutrition. 	<ul style="list-style-type: none"> • Number of political commitment speeches. • Number of meeting held with nutrition audience. 	<ul style="list-style-type: none"> • State Committee for Food and Nutrition • CSO¹⁸. • Ministry of Health.
Commissioners of key nutrition-sensitive ministries.	<ul style="list-style-type: none"> • Track nutrition-sensitive budget. • Sector specific meeting on contribution to nutrition. 	<ul style="list-style-type: none"> • Increased budgetary allocation to nutrition. • Percent of released funds. • Nutrition related activities in the line ministries. 	<ul style="list-style-type: none"> • State Committee for Food and Nutrition Ministry of Budget and Economic Planning.
State Committee of Food and nutrition.	<ul style="list-style-type: none"> • Training needs assessment for the various line ministries on nutrition. • Nutrition budget strategy. 	<ul style="list-style-type: none"> • Number of policy documents. • Alignment of ministerial programmes. 	<ul style="list-style-type: none"> • Ministry of Health.
Civil Society Organisations.	<ul style="list-style-type: none"> • Map active CSOs in the state. 	<ul style="list-style-type: none"> • Number of CSOs in the states. • Increase in number of Local Government Areas where CSOs work. 	<ul style="list-style-type: none"> • Ministry of Health. • State Committee for Food and Nutrition
Media.	<ul style="list-style-type: none"> • Train state journalists on nutrition issues and nutrition reporting. • Follow up media houses on nutrition reporting in the state. • Regular press briefing on nutrition-related issues. 	<ul style="list-style-type: none"> • Number of state-based media houses reporting on nutrition. • Media database. • Press briefing on nutrition. • Number of journalists trained on nutrition. 	<ul style="list-style-type: none"> • State Committee for Food and Nutrition

¹⁸ Civil Society Organisation

2. Roadmap specific for Kebbi and Anambra States

This section presents state-specific recommendations based on the mainstreaming principles in the actions above. It highlights recommendations and actionable strategies that would help Agriculture, Social Welfare, Education, and Environmental ministries to deliver nutrition more effectively.

a. Where are the stunted children in Kebbi State?

All LGAs' stunting prevalence in Kebbi State are higher than the country average of 37 percent and 20 percent cut-off for public health problems. When categorised according to burden the local governments with the highest prevalence of malnutrition in Kebbi State include Maiyama (66.8 percent), Suru (66.5 percent), Kalgo (66.3 percent), Bunza (66.3 percent), Jega (65.4 percent), Wasagu/Danko (64.9 percent), and Gwandu (63.2 percent)¹⁹. With the state stunting average being 63.5 percent, all LGAs in the state still need urgent action.

Table 8.6 Roadmap for Kebbi State

Where	Goal	Action	Programme input	Programme output	Who
Education.	<ul style="list-style-type: none"> Target LGAs with high malnutrition. Increase quality of ECD. Increase enrolment. 	<ul style="list-style-type: none"> Integration. State level commitment. Cultural sensitivity. 	<ul style="list-style-type: none"> Employ more teachers. Enhance quality assurance. Improved child tracking system. Training of parents. Appropriate funding. Growth monitoring equipment and capacity. 	<ul style="list-style-type: none"> Improved enrolment and access to education. Monitoring and evaluation reports²⁰. 	<ul style="list-style-type: none"> State directors. Governor's office. State Committee for Food and Nutrition

¹⁹ Osgood-Zimmerman, A. et al (2018) 'Mapping child growth failure in Africa between 2000 and 2015', Nature. Nature Publishing Group, 555(7694), pp. 41–47. doi: 10.1038/nature25760.

²⁰ This includes annual, biannual or midterm reports.

Social Welfare.	<ul style="list-style-type: none"> Improved skills for employment. Improved nutrition knowledge. 	<ul style="list-style-type: none"> Integration with other sectors. Targeting of LGAs with a high burden. 	<ul style="list-style-type: none"> Improved training curriculum. Availability of equipment. Quality assurance of training programme. 	<ul style="list-style-type: none"> Improved skills acquisition. Increased nutrition/health knowledge. 	<ul style="list-style-type: none"> State directors. Governor's office. SCFN.
Environment.	<ul style="list-style-type: none"> Improve sanitation in the state. Improve citizen environmental awareness. 	<ul style="list-style-type: none"> Alignment of waste management and ministry. Formation of state environmental task force. Advocacy. Intersectoral collaboration. Develop indicators. Cultural sensitivity in employment. 	<ul style="list-style-type: none"> Employ qualified environmental officers. Implement environmental inspections. Enhance quality assurance. Active information and education campaigns and BCC²¹. 	<ul style="list-style-type: none"> Monthly reports. Improved sanitation. Increased citizen awareness, knowledge and practice 	<ul style="list-style-type: none"> State directors. Governor's office. State Committee for Food and Nutrition
Agriculture.	<ul style="list-style-type: none"> Increased farmer's income. Increased nutrition knowledge. 	<ul style="list-style-type: none"> Integration. Sustainability strategies. 	<ul style="list-style-type: none"> Strengthen the nutrition BCC. Train extension agents on nutrition pathways. Strengthen exit strategies for sustainability. 	<ul style="list-style-type: none"> Increased farmer's income. 	<ul style="list-style-type: none"> State directors. Governor's office. State Committee for Food and Nutrition

²¹BCC - Behavioural Change Communication

d. Anambra State

The LGAs with the highest burden of stunting in Anambra State, by percentage, is Anambra West (25.5 percent), Ayamelum (22.9 percent), Ogbaru (22.2 percent), Anambra East (20 percent), Awka North (19.9 percent), Onitsha North (19.8 percent), and Dunukofia (19.2 percent)²². The state stunting average is 19 percent.

Table 8.7 Roadmap for Anambra State

Where	Goal	Action	Programme input	Programme output	Who
Education.	<ul style="list-style-type: none"> • Target identified LGAs. • Increase quality of Early Childhood Development. • Increase enrolment. 	<ul style="list-style-type: none"> • Integration. • State level commitment. 	<ul style="list-style-type: none"> • Employ more teachers. • Enhance quality assurance. • Improved child tracking system. • Training of parents. • Increased Funding. • Growth monitoring equipment and capacity. 	<ul style="list-style-type: none"> • Improved enrolment and access to education. • Monitoring and evaluation reports. 	<ul style="list-style-type: none"> • State directors. • Governor's office. • SCFN²³.
Social Welfare.	<ul style="list-style-type: none"> • Improved skills²⁴ for employment. • Improved nutrition knowledge. 	<ul style="list-style-type: none"> • Integration with other sectors. 	<ul style="list-style-type: none"> • Improved training curriculum. • Availability of equipment²⁵. • Quality assurance. 	<ul style="list-style-type: none"> • Improved skills acquisition. 	<ul style="list-style-type: none"> • State directors. • Governor's office.

²² Osgood-Zimmerman, A. et al (2018) 'Mapping child growth failure in Africa between 2000 and 2015', Nature. Nature Publishing Group, 555(7694), pp. 41–47. doi: 10.1038/nature25760.

²³ State Committee for Food and Nutrition

²⁴ Refers to labour-based skills such as sewing, baking among others

²⁵ Refers to equipment for skills acquisition

		<ul style="list-style-type: none"> • Targeting of Local Government Areas with high burden. 		<ul style="list-style-type: none"> • Increased nutrition/health knowledge. 	<ul style="list-style-type: none"> • SCFN.
Environment.	<ul style="list-style-type: none"> • Improve sanitation in the state. • Improve citizen environmental awareness. 	<ul style="list-style-type: none"> • Alignment of waste management and ministry. • Formation of state environmental task force. • Advocacy. • Intersectoral collaboration. • Develop indicators. • Institutional independence. 	<ul style="list-style-type: none"> • Employ qualified environmental officers. • Implement environmental inspections. • Enhance quality assurance. • Active information and education campaigns and BCC²⁶. 	<ul style="list-style-type: none"> • Monthly reports. • Improved sanitation. • Increased citizen awareness, knowledge and practice. 	<ul style="list-style-type: none"> • State directors. • Governor's office. • SCFN.
Agriculture.	<ul style="list-style-type: none"> • Increased farmer's income. • Increased nutrition knowledge. 	<ul style="list-style-type: none"> • Integration. • Sustainability strategies. 	<ul style="list-style-type: none"> • Strengthen the nutrition BCC. • Train extension agents on nutrition pathways. • Strengthen exit strategies for sustainability. 	<ul style="list-style-type: none"> • Increased farmer's income. 	<ul style="list-style-type: none"> • State directors. • Governor's office. • SCFN.

²⁶ BBC - Behavioural Change Communication

8.7 State variations in the roadmap

Table 8.8 below presents a snapshot of the differences between proposed solution in Anambra and Kebbi State for mainstreaming nutrition-sensitive interventions. Recurring elements that differ in the states include poverty levels, cultural sensitivity with an impact on the roles that Environmental health officers and agricultural agents can play and institutional structures.

Table 8.8: Some of the difference between Anambra and Kebbi states

Sectors	Anambra	Kebbi
Education	Lower poverty rates in this state also means that state funding of education can be complimented by contributions from parents. Already this exists in both states but higher in Anambra State.	Cultural sensitivity in terms of curriculum and active recruitment is needed for adequate impact
Social Welfare	There are subtle differences in the findings for this sector. For instance, better curriculum and longer teaching period in Anambra State, the differences did not warrant an entirely different recommendation.	
Agriculture	Being implemented with funding from AfDB, the implementation of most agricultural program especially the assessed ATASP is similar in both states. The change required would be to strengthen exit strategies in both states. Kebbi would also need a culture sensitive employment, to increase the number of female agricultural agents.	
WASH	WASH improvement in Anambra state institutional independence to enhance implementation of some WASH programs is currently non-existent.	A core difference of WASH in Kebbi state is cultural sensitivity in employment

The importance of context to implementation of HIV/AIDS using South Africa as an example has been established (Edwards and Barker, 2014). Edwards and Barker (2014) raise concerns similar to this dissertation that national programs might fail without consideration of context-sensitive designs. Contextual elements and lessons learnt from the HIV/AIDS interventions include cultural practices and

gender norms, characteristics of study population, characteristics of health facilities, characteristics of health workers and sources of funding among others (Edwards and Barker, 2014). These elements have also been found to differ between Anambra and Kebbi States. Linking the context literature to the data available would further strengthen an analysis of similarities and differences of both states' roadmap and malnutrition profile.

8.8 Conclusion

The greatest promise for malnutrition prevention and reduction currently is placed on the ability to prioritise interventions that are designed and implemented to be nutrition-sensitive and encourage access to nutrition-specific interventions. The inadequacy of the nutrition-specific interventions to sustainably eliminate malnutrition alone has led to the clamour for nutrition-sensitive interventions. Through focusing on prevention and suitable reduction, all cross-cutting sectors were focused on nutrition-sensitivity which has strong evidence for its role in malnutrition reduction. Evidence indicates that effective and sustainable reduction in malnutrition can be achieved through the better integration of nutrition-sensitive sectors and further embedding of nutrition-sensitive principles into the actions of the programmes and sectors. Substantial evidence also suggests that nutrition-specific interventions alone may not be enough to reduce malnutrition rates.

These nutrition-sensitive interventions have the potential of increasing the access to the nutrition-specific interventions among other advantages. For example, a social protection programme can increase the utilisation of health facilities and early childhood development facilities. The limited effectiveness of nutrition-specific interventions, especially those that focus at the health-centres, may be in part because supporting sectors fail to link up to these programmes.

The primary goal of this study was to develop a roadmap for mainstreaming nutrition-sensitivity that addresses important elements of the contextualisation and targeting for two states in Nigeria. The approach used in the study operationalise the MNIA framework aimed at articulating the epidemiological, operational, and socio-political factors that are important for contextual interventions. The study used pathway linkages and theories established in literature to guide the development of the roadmap. Policy recommendations were based on the assessment of the political economy in terms of commitments and advocacy.

There is a need to move beyond an isolated focus on each of the domains and to consider the impact of a holistic intervention focusing on outcomes. This roadmap thus provides a structure for developing such holistic interventions. The end-users of the roadmap are supposed to be government stakeholders with the onus to reduce malnutrition in all its forms.

CHAPTER 9

9 SUMMARY AND RECOMMENDATIONS

9.1 Introduction

This study had been set up to directly develop a malnutrition-reduction roadmap for two states where one had the highest stunting rate, and the other one had the one of the lowest stunting prevalence in the country, but is still considered a public health problem, according to WHO (1995b). The roadmap was deemed the best-suited for providing contextual interventions that have taken the differences for varying prevalence into consideration. Various studies had previously looked at implementation (Olney et al, 2013; Nguyen et al, 2014), political economy (Taylor, 2012; Balarajan & Reich, 2016), and epidemiology (Bain et al, 2013). This study looked at the interplay of these three domains or factors, studying underlining subthemes which brought up new insights and raised further questions. To conclude this dissertation, this chapter summarises the dissertations' contribution, limitation and opportunities for further research and analysis.

In reaching this point, it is hoped that this study would have made some contribution to the discourse on contextual nutrition-sensitive programmes and interventions. Knowledge of this issue is important. There is a plethora of ideas, interventions, and solutions about how malnutrition can be reduced or eliminated in developing countries (Kasirye, 2015; Bhattarai, Bashyal & Al-Omair, 2017). This makes it further difficult for governments to decide where best to focus its efforts, given the scarce resources and multiple solutions available. This study began by assessing both contributions and limitations from literature. Then took informed approaches and philosophical underpinning and conceptual framework to provide new insight into the phenomenon of nutrition-sensitivity. However, this approach presented challenges that come into the underexplored territory such as the lack of appropriate documents and datasets for the different phases.

9.2 Findings from the study

9.2.1 Findings from the literature review

a. Nutrition-sensitivity

The literature on nutrition-sensitive agriculture provides researchers and scholars with detailed and robust linkages between nutrition and agriculture (Leroy & Frongillo, 2007; Girard et al, 2012; Masset et al, 2012; Fiorella et al, 2016; Pandey, Mahendra Dev & Jayachandran, 2016; Ruel, Quisumbing &

Balagamwala, 2018). The linkages that operate at household level include the influence of own food production, women empowerment, and income through food. The impact of education while established had mostly focused on parental education (Alderman & Headey, 2017). There is emerging interest and attention in the impact and role of early childhood development (Engle et al, 2007, 2011; Grantham-McGregor et al, 2007; Walker et al, 2007, 2011; Aboud & Yousafzai, 2015; Britto et al, 2016; Richter et al, 2016; Black et al, 2017). While impacts of social protection have largely considered cash transfers, both conditional and unconditional (Bastagli et al, 2016; Hidrobo et al, 2018), there is an opportunity to critically explore the role of labour-market based interventions in addressing malnutrition. Information on any impact of labour-market interventions is limited. These linkages are crucial given the scale and reach of these interventions in Nigeria. The role of WASH and nutrition has also been recently explored (Dangour et al, 2013; Freeman et al, 2017). However, the research on WASH focuses on specific aspects of WASH such as handwashing and the source of water, rather than total sanitation. The links and role of total sanitation are clearly missing, despite the conflicting impact of recent findings on varying kinds of total sanitation programmes (Barnard et al, 2013; Patil et al, 2014).

b. Small Area Estimation

Estimation of stunting prevalence using modelling and incidences of indicators at local levels is a vital tool in planning and ensuring targeting. Various methods of SAE exist and have been applied regarding poverty and income (Rao, 2003; Haslett, Isidro & Jones, 2010). SAE is becoming common in malnutrition estimation and is increasingly available for more countries (Simler, 2006; NIS, MoP & WFP, 2013; Pave et al, 2016). The importance of SAE in malnutrition estimation lies in the ability to target small areas where higher prevalence or population of malnourished are domiciled.

c. Implementation research in nutrition

In the last five years, there has been an increased focus and publication on nutrition programme operations. Reviewed literature revealed that the importance of implementation research cannot be overemphasised, as it plays a vital role in ensuring that programme or interventions deliver impacts.

d. Nutrition political economy

The political economy literature in nutrition has strengthened various methods, tools and concepts for analysing how the nutrition governance space works. A current gap in this theme is a systemic analysis of this policy space and the impact of such on the said policy space.

9.2.2 Empirical findings from the study

The empirical findings in the study support the proposition on contexts, that varying economic, geographical and malnutrition profiles would require varying contextual solutions at sub-national levels.

a. Small Area Estimation

The analysis of results of LGA estimates of stunting in the two states, reported in Chapter 4, revealed that within-state differences exist in stunting prevalence and this difference was larger in Kebbi than in Anambra State. LGAs with the highest stunting rates were in Kebbi State. According to the study's model, LGA stunting prevalence in Kebbi State ranged from 51.3 percent to 64.4 percent. In Anambra State, despite low state average, some LGAs had higher than average stunting prevalence which highlights the need for continued nutrition-sensitive programming and targeting. LGA stunting prevalence in Anambra State ranged from 15.9 percent to 28.2 percent.

The findings also revealed the variations of LGA stunting prevalence within states. When considering programming, these findings are remarkable as they extenuate the need for these LGAs to be targeted.

b. Nutrition-sensitivity assessment

Chapter 5 revealed the current nutrition-sensitivity of programmes in the states. Programmes were assessed and scored based on nutrition-sensitive criteria. Total scores were categorised as 'nutrition-sensitive', 'averagely nutrition-sensitive', and 'not nutrition-sensitive', while nutrition-sensitivity potential was categorised as 'excellent potential', 'good potential', and 'no potential'. Though the programmes all had the potential to be nutrition-sensitive, they were not nutrition-sensitive, lacking mainly in implementation, utilisation, coverage, and sustainability. The agricultural and education programmes in the states have not been fully optimised to be nutrition-sensitive. Currently, they are averagely nutrition-sensitive but possess the qualities of an excellent nutrition-sensitive programme and sector. Some programmes in the WASH and social welfare ministries also possess excellent nutrition-sensitive potential and should be maximised.

c. Process evaluation

Having identified the programme's current and potential nutrition-sensitivity, Chapter 6 identified the operational factors that were barriers or facilitators to the programmes. First, their theory-based PIP was identified, including contextual factors and then falter points. In ATASP-1, the main pathway was rural infrastructure to support farmers and the development of value chains. In ECD, five pathways were identified, provision of quality ECD, availability of teachers, parental ECD understanding,

multisectoral coordination and Growth Monitoring and Tracking. For the Environmental Sanitation, the identified pathways were developing healthy human habitation and improved citizenry practices and habitation. In the skills acquisition programme, the main pathway was improved income and life skills.

The results revealed that all dimensions of implementation of programmes can be improved. Beginning with recruitment for the programmes, fidelity of implementation and reach, among others. Great variation was also found between donor-implemented programmes in the agricultural sector and the sole government implemented programmes in education, WASH, and social protection sectors.

Contextual factors profile citizens relations with government, when in tandem, with less poverty and shaped service delivery. For instance, citizens in Anambra State were more likely to provide environmental sanitation services for themselves and pay more for ECD support than people in Kebbi State.

d. Political commitment

Current political commitment varied in both states, while expressed commitment and budgetary commitment was high in Kebbi State, in Anambra State, there was institutional commitment. The existence of institutional coordination committees made of different sectors works for driving commitment to nutrition actions, though this can be overshadowed by individual sectoral actions. Opportunities exist for strategic framing and advocacy of the nutrition profile of the states, especially using the local state media. There are open avenues and opportunities that can be hinged on to generate political commitment for nutrition in the states.

Also, in the quest to effectively harness and then utilise the SCFN as the multisectoral body for nutrition advocacy, and programming in the states, certain factors hinder the performance of the multisectoral body. Whilst financial constraints and current push by international agencies are prominent, member capacity, systemic forces, and linkages are hindering the platform from effectively coordinating nutrition-sensitive delivery. The overall influence of the political class also influence the actions of members who are mostly senior civil servants.

e. The roadmap

The final output of this dissertation was the roadmap, which was systematically developed using Whittaker et al (2011), and then pilot-tested and validated subsequently. The developed roadmap presented firstly, a generic set of actions for mainstreaming nutrition-sensitivity in Nigerian states.

Second was a set of advocacy actions. Finally, state-specific actions emanating from the empirical findings were presented.

9.3 Contributions to knowledge and implications for practice

In this section, the researcher reflects on the appropriateness of the methods and philosophy employed in this study. The researcher offers some commentary on what the researcher's findings add to the overall literature. Considering the approaches taken, the framework applied, the philosophy applied, and empirical data generated, the study hopes cautiously to have provided a new perspective on the subject matter of nutrition-sensitivity.

9.3.1 Literature

This thesis contributes to an emerging field of contextualisation of nutrition interventions and programmes. A vast literature exists on nutrition-sensitivity and the role played by political economy and operational factors influencing nutrition programmes. On the other hand, literature on small area estimates of malnutrition indices are beginning to emerge, but no insight is gained into how these domains interact in real life. This dissertation brought these domains together and then developed a roadmap highlighting the implications of these bodies of work.

Despite rich interventions and programmes across the nutrition-sensitive knowledge body, there has been limited effort to find the trade-offs between political will, implementation and epidemiology of malnutrition (Menon et al, 2011). While the nutrition scholars have focussed and provided insights on efficacious and effective nutrition-sensitive interventions, there is much less insight into how these interventions work in real-life when implemented in large by governments. This dissertation has contributed to debating implementation and impact by governments, how political commitment influences impact and how varying epidemiology can be utilised in assessing malnutrition and developing contextual solutions.

Rather than contributing another study that expands on the effectiveness of nutrition-sensitive programmes implemented by international or national NGOs, this investigation was deliberately designed to evaluate nutrition-sensitive programmes implemented by governments with the intention of gaining insights into improving the understanding of the impact of large-scale implementation. Informants that were interviewed were often aware of the complexity of nutrition which involved "*The funding and will*" or "*things not working as expected*". These experiences

highlight the difficult complexity that researchers need to capture when they expect a programme to be effective and make an impact or result in a difference in malnutrition indices.

This study also adds to the growing literature on theory-driven process evaluations that assess factors influencing the effectiveness of different nutrition interventions (Olney et al, 2013; Stewart et al, 2013; Mbuya et al, 2015; Harvey-Golding, Donkin & Defeyter, 2016).

9.3.2 Philosophical and theoretical approach

This study adopted a somewhat 'newer' approach to nutrition-sensitive programming. This approach based on the Mainstreaming Initiative framework belies the pragmatic philosophy and has been utilised because the emerging empirical result has the most implication for contextual realities. The study aligned with the main characteristics of pragmatism which is knowledge creation and what works. Applying pragmatic epistemology as found in this study lands us benefits such as contextualised research, continued learning, research as social action, support for mixed methods, and varying kinds of knowledge (Long, McDermott & Meadows, 2018).

This dissertation drew heavily on the work of the MNIA framework to make an argument that contextual and realistic solutions are at the intersection of the nutrition epidemiology, implementation, and political commitment domains. The emphasis of Menon et al (2011) on context and realistic programmes or interventions is especially useful in the researcher's analysis as it allows the study to critically reflect on solutions that are hindered by implementation bottlenecks or lack of political commitment. The conceptualisation of multiple domains (Menon et al, 2011) is generative for grasping how various context and contextual factors can be instrumental in a programme's success or failure. It is here also that the concept of Menon et al (2011) to the focus on neglected domains (operational and political commitment) are of value in informing how to strategically design or modify nutrition programmes, interventions and policies.

The main features that drew this study to adopting the pragmatic and mainstreaming nutrition domains were contextualisation and targeting. The study intended to overcome the tendency in literature to regard all programmes as similar and needing same troubleshooting; similarities that have been compared in this research.

Pragmatism enables plural knowledge and sources and equally contextualised. These elements are the core strengths of pragmatism. This dissertation has shown that application of multiple sources, recognising the validity of multiple forms and perspectives of knowledge. I argue that the value of the ethnographic observations, key informant interviews, small area estimation, workshops, document

reviews all provide rich understanding of the dynamics of malnutrition in Anambra and Kebbi States and aided the development of a roadmap. The flexibility that the choice of methods provides allows the use of mixed methods to ensure that rich data is collected and analysed. In addition to the above, the application of pluralism or multiple knowledge does not result in absoluteness of solution. This pluralism provides giving us room to design interventions account for complex, real world and everyday practices of communities. Applying the pragmatic paradigm also enables research to be action-based and/or influence action.

9.3.3 Research design and methodology

The originality of the dissertation also exist in its methodology. The application of MNIA provides

1. A comprehensive model in which: Political economy, operational research and stunting epidemiology are included in a determination of actions for mainstreaming nutrition-sensitive interventions. This aspect confers to the study a more holistic approach to designing sustainable interventions. The use of the MNIA implies that continual assessments are made of countries, states and LGAs or point of reference. This differs from the once-off descriptive assessments.
2. One of the few attempts on stunting prevalence determination using small area estimation. This analysis replaces to a large extent the need to use state-wide prevalence in interventions design. Though the final estimates presented in Chapter 4 generates large confidence interval, this work has added to methods and applicability of SAE.
3. Nutrition-sensitive assessment has mostly been qualitative, whereas this dissertation has in Chapter 5 made efforts to quantify the concept of nutrition-sensitivity. The rationale behind this lies mainly in the fact that creating metrics would ensure and enhance actions regarding nutrition-sensitivity.
4. Lastly, it has been shown through empirical evidence in this body of work that MNIA can be applied to develop contextual solutions. More application would be needed to affirm this framework.

9.3.4 Exploring subnational differences

Another advantage that was clearly established was that of establishing state-level differences. Prior arguments in the introductions hypothesised that the states were dissimilar, the findings confirmed that these states had diversity in a wide of range of factors. The empirical findings above show the difference in state stunting variations, implementation needs and factors, kinds of political

commitment, existing nutrition advocacy, and finally the roadmap. This most importantly highlights the need for state-level solutions, cognisance of the time and space they are established in, and prone to frequent revision. Exploring subnational or local difference in this has confirmed the findings of Warren and Frongillo (2017) that agenda and implementation processes are entrenched within political and economic processes. Thus, the need as shown in this dissertation, is that a state given political space and other contextual factors must be studied in detail to allow the design of interventions and advocacy that properly account for existing weaknesses and hinge on comparative advantage.

9.3.5 Towards a roadmap

The conclusions from the previous chapter highlight that there is some value in discovering contextual bottlenecks and solutions in the fight against malnutrition. This study has presented a roadmap that outlines possible interventions expressed in the epidemiology, operational, and political factors. This roadmap presents a guide when planning these interventions for states and countries. The roadmap has illustrated the operationalising of the MNIA within nutrition-sensitivity sectors in two states – Kebbi and Anambra. This focus on nutrition-sensitivity is aimed at understanding the operation in nutrition-sensitive sectors, ultimately hoping to improve these interventions in these sectors to work better in the prevention of malnutrition.

What is striking at the end of this investigation is how much different the state solutions are and how it is shaped by contextual specifics. From the beginning, the likelihood that the different contexts such as finance, religion, and demographics would differently influence the three domains studied was anticipated. However, by the end, richer insights into the intersection of political, implementation and epidemiological domains emerged, showing the complexity that these interactions generate. These findings have been described in the empirical findings section above.

Similar to many other studies, this roadmap development, given the multi-sectoral and multi-domains assessed, has limitations. These limitations are discussed in detail in the limitations section of each chapter and summarised under section 9.4 in this Chapter 9. Despite these limitations, the roadmap reflects best practice in the use of the mainstreaming nutrition framework to design interventions and/or action plans and will add significantly to the malnutrition policy/programming evidence base. The greatest promise for malnutrition currently is the ability to create and execute interventions that encourage contextual solutions. Importantly, these solutions hinged in multisectoral linkages. Lastly, the roadmap emphasises geographical differences relating to malnutrition distribution in the states, highlighting high-burden LGAs that needs targeting and immediate focus.

9.3.6 Who is expected to use the findings?

In this study, the main research question desired to find what a roadmap for mainstreaming nutrition in the study would look like. One study participant from the political economy phase summed up the use as *“the problem of nutrition is complicated”* explaining further that *“we need to deal with politicians and other sectors”*.

The primary use of the study’s findings would be the nutrition programme and policy stakeholders in the study states. It is also hoped that the study has provided a template for similar analysis to be done in the nutrition-sensitive space in other states in Nigeria.

9.4 Limitations and future research

This study has several limitations of note. First, the SAE did not estimate the distribution of overweight and obese children. This study had set to map malnutrition (under and overnutrition in under five-year olds) but the lack of census data from Nigeria meant that the study used physical characteristics in its examination. These physical characteristics are yet to be applied to the estimation of obesity and overweight. Factors affecting overweight and obesity in both adults and children are complex and beyond the scope of this study. Future research may address this by integrating datasets for estimation of childhood overweight and obesity. The importance of this lies in the fact that continued advocacy on malnutrition has the potential of overlooking childhood overweight until it becomes a menace. In addition, programmes that fight undernutrition may exacerbate childhood overweight. Thus, it is prudent that counter efforts are employed to target it.

Furthermore, the population of under five-year olds has not been included in this study to estimate the absolute number of stunted children per LGA. It could be that the introduction of population dynamics would skew the targeting of malnutrition. For instance, states with lower prevalence but high population stand a chance of having an equally high number of malnourished children than states with high prevalence but low population. Thus, mapping absolute numbers of malnourished children per LGA would provide more insight.

Another limitation the study had was the lack of programme documents, monitoring and evaluation tools or necessary documentation by interventions executed by the government in both states. In cases like this, the study compensated by employing additional KII to fill in the gaps in data. This might have introduced interviewer and response bias into the analysis of nutrition sensitivity and potential.

Indeed, comparison, as made between interviews and documents, would have added to the reliability of the data.

Furthermore, the instrument used in assessing nutrition-sensitivity and potential was adopted from Ruel, Alderman and Maternal and Child Nutrition Study Group (2013). A variant of it had been employed by Olney, Rawat and Ruel (2012) to identify potential platforms for delivering micronutrient intervention. Future studies should validate an instrument for measuring nutrition-sensitivity and the potential of interventions to be nutrition-sensitive.

The programme impact pathway analysis did not consider confounding factors that might affect the effectiveness of programmes.

The use of the PCOM-RAT instrument in the analysis of political commitment has its own limitations. The instruments do not cover some themes, which might be important in political economy analysis. Future research may address these issues by using other instruments such as the commitment matrix (de Lintelo & Lakshman, 2015) or by integrating other themes and adding relevant subthemes. A further comparison on the estimation of political commitment by stakeholders themselves vs experts' perception of political commitment might identify issues not exposed through this study or provide better explanations for actual political commitment.

9.5 Recommendations

9.5.1 Recommendation for states and Nigeria

Considering the results presented in Chapter 4 to 8 and the synthesis above, the primary way of mainstreaming nutrition-sensitivity is by seeking state contextual solutions, as this study has done in the proposed roadmap. Fundamental to this is the analysis of LGA prevalence, and the implementation of programme and political commitment to nutrition in the states. That said, an institution is needed to drive this mainstreaming, thus all SCFN must be revigorated to drive this process. In addition, increasing evidence has emerged on a very strong linkage between nutrition and WASH, subsequently it is vital that the Ministry of Environment at the federal and state level be admitted into the NCFN and SCFN respectively. It is recommended that the government use the developed roadmap to improve the prospect of achieving the SDGs.

9.5.2 Recommendations for further research

This study has by no means addressed all the gaps regarding mainstreaming nutrition-sensitivity. There is still more to be learned and explored about this topic. To do so it is possible to extend this study to other states and countries, to move a step further into the implementation of the roadmap and identify trade-offs and thus improve the roadmap.

The main opportunity would be to test the roadmap in both states, identify successes and failures and causes of either success or failure. In this respect, on implementation of the roadmap, lies the opportunity to explore the intersecting of domains from the multiple sources, recognising where cooperation or tension exists, where influences overlap and are intertwined. For example, an action research may provide rich data important in understanding from the inception of implementation to the end, factors critical for success. Most importantly, it can expose tensions and trade-offs needed to realise success. Quantitative cohort data would be able to evaluate the impact of such implementation on nutrition outcomes.

Another opportunity would be to critically delineate political economy results and findings into high level and mid-level actors and identify the group of actors most needed for the success of nutrition.

Ultimately interventions to reduce malnutrition must focus on reducing the high malnutrition burden. Formative research in LGAs with high burden will be useful in guiding future intervention development, such research would identify contextual factors that can be influenced by nutrition-sensitive interventions.

A validation of the nutrition-sensitivity instrument would help in providing metrics for measuring nutrition-sensitivity across sectors. Adaptations are better navigated when variables are measurable and measured.

9.6 Conclusion

This dissertation set out to answer the question – *What will a nutrition-sensitive interventions roadmap look like for Anambra and Kebbi States, Nigeria?* First, the study utilised the SAE, nutrition-sensitive assessment, process evaluation and political economy to explore the relevant themes. It was found that malnutrition prevalence varied greatly geographically across both states. In addition, the theory-based PIP discovered falter points that might lead to existing nutrition-sensitive programmes' inability to deliver nutrition impacts to children under five in both states. As expected, these falter points, implementation input and strategies varied between both states. Finally, while political will

also vary between the two states, Anambra State had a lower political commitment to nutrition than Kebbi State.

Considering these findings, the study developed a roadmap for mainstreaming nutrition-sensitive programming in both states. The roadmap nutrition-sensitive strategies such as the inclusion of nutrition indicators and goals, access to women and coverage among others that could strengthen the potential of the programmes. Other sections in the roadmap, highlighted implementation input and strategies to ensure that nutrition-sensitive programmes impact on nutrition. Lastly, a nutrition advocacy outlines a template needed to generate political commitment for nutrition in the study states. The study can be said to have answered the main research questions asked.

The findings of this study expanded on the work of previous researchers in nutrition-sensitivity, contextualisation, implementation research, and nutrition governance. The results could lead to further research on the conceptualisation of nutrition programmes and interventions, it also has the potential of leading to changes in nutrition programming, such as better implementation to ensure that nutrition-sensitive and political commitment to nutrition. Integrating nutrition targets and outcomes in nutrition-sensitive sectors will contribute to the attainments of the SDGs.

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APPENDICES

Appendix 1: Ethics approval letter



UNIVERSITEIT STELLENBOSCH • UNIVERSITY
100 kennisvermool • your knowledge partner

Approval Notice New Application

23-Aug-2017

Ethics Reference #: S17/05/099

Title: Development of a roadmap for mainstreaming contextual nutrition-sensitive interventions at Kebbi and Anambra States, Nigeria

Dear Ms Oluchi Ezekannagha,

The **Response to Modifications** received on **04-Aug-2017** was reviewed by members of **Health Research Ethics Committee (HREC) 2** via **expedited** review procedures on **23-Aug-2017** and was approved.

Please note the following information about your approved research protocol:

Protocol Approval Period: **This project has approval for 12 months from the date of this letter.**

Please remember to use your protocol number (S17/05/099) on any documents or correspondence with the HREC concerning your research protocol.

Please note that the HREC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

After Ethical Review:

Please note a template of the progress report is obtainable on www.sun.ac.za/rds and should be submitted to the Committee before the year has expired.

The Committee will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly for an external audit.

Translation of the consent document to the language applicable to the study participants should be submitted.

Federal Wide Assurance Number: 00001372

Institutional Review Board (IRB) Number: IRB0005239

The Health Research Ethics Committee complies with the SA National Health Act No. 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 Part 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki and the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles, Structures and Processes 2015 (Department of Health).



Afdeling Navorsingsontwikkeling en -Steun • Research Development and Support Division

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Appendix 2: Sample letter of Introduction



UNIVERSITEIT • STELLENBOSCH • UNIVERSITY
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Tuesday, March 14, 2017

The Honorable commissioner
Ministry of Agriculture
Kebbi state
Birnin Kebbi

RE: REQUEST FOR PERMISSION TO CONDUCT STUDY IN YOUR MINISTRY

I write to introduce Ms Ezekannagha Oluchi to you. Ms Ezekannagha is a PhD student of Nutritional Sciences at Stellenbosch University in South Africa (student no 20647689). She is a Nigerian National and only in South Africa for study purposes. She is registered since 2016 and will complete in 2018. She has funding from various sources but is required to do her research in Nigeria in order to make her contribution meaningful to the body of knowledge.

Her topic is “*Development of a roadmap for mainstreaming contextual nutrition-sensitive interventions at Kebbi and Anambra states, Nigeria*”. This mainly involves dissecting programmes in Education, Water, Environment, Agriculture and Social welfare to find ways to streamline them to target malnourished women and children in your state.

Specific Objectives

1. To map malnutrition in the Kebbi and Anambra states, Nigeria and underlying factors that affect them.
2. To assess the operational realities in nutrition sensitive sectors
3. To assess socio-political realities in nutrition-sensitive sectors
4. To develop and validate a priority-roadmap for mainstreaming nutrition through participatory approach.

Your support and permission

She needs the support of your ministry in these ways

1. Provide her with programme and activities documents for nutrition-sensitivity review
2. Grant her access to programme sites for nutrition-sensitivity observation (Maximum of two)
3. Participation of high-ranking personnel from your ministry in the workshop to access the political economy of nutrition using an administered questionnaire.
4. Validation of developed roadmap by ministry officials



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Funding

The student has funding for her study. She is supported by the National Research Foundation (NRF) and Margaret McNamara Education Grant (MMEG) for Africa.

Expected outcome

This study will contribute in the following ways

1. Mapping malnutrition in the state to determine Local Government of high burden.
2. The study develops pragmatic solutions to malnutrition, these solutions aligns with already existing programmes.
3. It can serve as baseline to access funding from multilateral institutions for integrating Early childhood education, WASH programs, nutrition-sensitive agriculture and social protection for the poorest population. The new awareness of nutrition on the international scene has raised funds for nutrition programming and policymaking.

The student can be contacted for further information on 07066147353 or 20647689@sun.ac.za

Her promoters consist of a team of four including Dr Maziya-Dixon, Bussie (IITA) based in Ibadan, Nigeria. The summary of her project is attached.

Sincerely yours.

.....
Signature
Prof Xikombiso Mbhenyane,



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Appendix 3: Nutrition-sensitivity assessment checklist

		Yes = 1 No = 0
	Targeting	
1	Does it target groups with the highest malnutrition? - Identified local governments from the Phase 1 analysis?	
2	Does it target the group most vulnerable? - Under-five children - Pregnant and/or lactating mothers	
	Nutrition goals to maximise opportunities	
3	Are there activities that can impact nutrition? - As identified from sectoral programme impact pathways in literature	
4	Are planned activities going to lead to a change in nutritional status if implemented? <i>(Please comment on the pathway through which the change can occur)</i>	
5	Does it include nutrition indicators for monitoring and evaluation? <i>(Please list the nutrition indicators)</i>	
	Enabling women	
6	Does the programme promote women's nutritional status, social, and overall empowerment?	
	Use a nutrition-sensitive programme as a delivery platform for nutrition-specific intervention	
7	Is the programme linked to health and nutrition services or any behavioural communication change? <i>(Please list below)</i>	
	Integrating different sectors	
8	Is the programme integrated with another programme? <i>(Please list below)</i>	

Source: WFP (2014), adapted from Ruel (2013)

Comments (Further clarifications and project details)

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Appendix 4: Identification of potential of programme to be nutrition-sensitive

	Yes = 1, No = 0
Targeting Can the programme target under-five children and women?	
Efficacious interventions Are there known efficacious interventions through established pathways?	
Implementation Is the programme implemented as planned?	
Utilisation Do the targeted populations benefit from the programme?	
Coverage Does the programme have high coverage of the targeted population(s)?	
Sustainability Is the programme sustainable from the demand side? Is it sustainable from the supply side? Is it sustainable though political changes?	

Appendix 5: List of documents reviewed and sources

	Education	Women Affairs	Environment	Agriculture
<p>General documents collected from either state and/or federal government, but applies to both states</p>	Children’s school readiness factors in Nigeria (NERDC and UNICEF, 2012)	-	Policy guidelines on school sanitation (FME, 2005)	Profile of off-takers in ATASP-1 Programme area
	Early childhood development standard for Nigeria (FME & UNICEF, 2014)	-	Policy guidelines on market and abattoir sanitation (FME, 2005)	Nigeria ATASP-1 SESA Summary (ATASP)
	Teacher's guide for one-year, pre-primary school education curriculum (NERDC & UNICEF, 2012)	-	National Environmental Sanitation Policy (FME, 2005)	ATASP-1 logical framework
	Public pre-primary and community-based early childhood care centre's classroom observation tool (Unidentified)	-	Waste management and safety guards on malaria control interventions in Nigeria: A training manual (FMoH, 2011)	Integrated safeguards datasheet appraisal stage for FADAMA III AF I
	Nigeria Early Childhood Care and Education (ECCE) programmes (UNESCO, 2006)	-	Policy guidelines on sanitary inspection of premises (FME, 2005)	Project Information Document (PID) Appraisal Stage for FAMADA II AF I

	National Policy on Education 4 th Edition (2004)			
	National Minimum Standards for Early Childcare enters in Nigeria			
	National Homegrown School Feeding Programme: the journey so far. Feeding one million school children April 2017			
	Nigeria Home Grown School Feeding Strategic Plan 2016-2020			
Kebbi – Documents	2017 ECCD in Kebbi State, their locations and number of pupils enrolled	Kebbi State Ministry of Social Welfare Handover notes	National Training Manual and trainers’ guide on food sanitation for environmental health practitioners (MoE Kebbi & NEPAD, 2006)	Report presented at the Internal Supervision Mission of ATASP-1 (ATASP 2017)
	-	-	The Hazards of soil erosion and its side effects on the socio-economic activities in Kebbi State (Maijega, 2015)	President's report: Proposed loan and grants to the Federal Republic of Nigeria for the Climate Change Adaptation and Agribusiness Support Programme in the Savannah Belt (IFAD, 2013)

-	-	Environmental protection and Socio-economic development in Kebbi State: Challenges and Prospects (KSME, 2010)	Ministry of Agriculture and natural resources Kebbi State Handing over note (2015)
-	-	Project Executed During this administration from May 2015 to date (March 2017) (KMWRDD, 2017)	ATASP-1 Performance Indicators Tracker Kebbi-Sokoto Zone
-	-	-	Kebbi Rice Value Chain Development Initiative in Kebbi State
-	-	-	Climate Change Adaptation and Agribusiness Support Programme (CASP) in the Savannah Belt of Nigeria Final Programme Report
			Documentation from Competitive African Rice Initiative (CARI) Rice Stakeholder Meeting, April 22nd, 2014, Abuja Nigeria
			Climate Change Adaptation and Agribusiness Support Programme in the Savannah Belt (CASP) Supervision report 2017

				<p>President's report</p> <p>Proposed loan and grants to the Federal Republic of Nigeria for the Climate Change Adaptation and Agribusiness Support Programme in the Savannah Belt 2013</p>
Anambra - Documents	Project Information Document (PID) Concept Stage. State Education Program Investment Project (World Bank 2011)	Ministry of Social Welfare, Children and Women Affairs Anambra State Detailed Budget 2017	Public Health Law 2006 (Anambra State of Nigeria Official Gazette, 2007)	IFAD VCDP Programme Design Report: Volume I - Main Report
	2017 ECCD in Anambra State, their locations and number of children enrolled	-	State Water Supply and Sanitation Policy (MPUWRCD, no date)	IFAD VCDP Supervision report (IFAD, 2016)
	-	-	-	Vegetable Production (Organic Option) (Okoli, unpublished)
				Value chain development programme (VCDP) Programme design report 2012
				Value Chain Development Programme (VCDP) Supervision report 2016

Appendix 6: Nutrition-sensitivity and potential scoresheet

TableA: Nutrition sensitivity of programs in the Ministry of Agriculture Anambra state to be nutrition sensitive

Environment		SASAKAWA	ATASP I	FADAMA II AF ²⁷ I	IFAD VCDP	HarvestPlus	
Identified Local Governments from the Phase 1 analysis	Score	1	1	1	1	1	
	Evidence	Some LGA with high malnutrition profile included					They work in all LGA of the state
	Source	KII ²⁸	Nigeria ATASP 1 SESA ²⁹ Summary	KII	VCDP program design report	KII	
	Analysis	-	-	-	-	-	
Under five children	Score	0	0	0	0	0	
	Evidence	No focus on under fives					
	Source	KII	Nigeria ATASP 1 SESA Summary	KII	VCDP program design report	KII	
	Analysis	-	-	-	-	-	
Pregnant and lactating mothers	Score	0	0	0	0	0	
	Evidence	No focus on pregnant and lactating women-					
	Source	KII	Nigeria ATASP 1 SESA Summary	KII	VCDP program design report	KII	
	Analysis	-	-	-	-	-	
Are there activities that can impact on nutrition?							
Are planned activities going to lead to a change in nutritional status if implemented	Score	1	1	1	1	1	
	Evidence	Fertilizer recommendation to improve the farmers yield Maize/cassava intercropping	Infrastructure providing access to markets and health Commodity value chain development	increased income with focus on cassava, rice, sorghum and horticulture crops value chains and link	Value chain development of	Provision of fortified seeds and nutrition education for better nutrition	

²⁷ AF - Additional Funding

²⁸ KII – Key Informant Interviews

²⁹ SESA – Strategic Environmental and Social Assessment

<p>Does the programme promote women's nutritional status, social and overall empowerment?</p> <p>Is the programme linked to health and nutrition services or any behavioural communication change (BCC)?³⁰</p>				them to organized market		
	Source	SASAKAWA/ACAI website KII	Nigeria ATASP 1 SESA Summary	KII	CARI matching Fund projects	KII
	Analysis	-	Adequate road network can aid the accessibility to markets which will improve income for farmers. Accessibility and availability of health care post will enable the timely utilization in time of emergencies Value chain of the focused crops will improve its availability	-	Increased income through better value chain	-
	Score	1	1	1	1	1
	Evidence	60% of recipients are women	The program focuses on Nigerian youths and women	The provide 100% funding for women groups and 50% for men group	35% matching grant will be earmarked for women. The program will also apply a gender action learning system	50:50 approach
	Source	KII	Nigeria ATASP 1 SESA Summary	KII	VCDP programme design report	KII
	Analysis	-	-	-	Ensuring separate funds for women will increase their chances of getting the funds	-
	Score	0	1	0	1	1
	Evidence	No explicit nutrition carried out	Rehabilitation of primary healthcare centres	Mostly agricultural training	Nutrition or health service is linked to the program	Nutrition training is a primary focus of the program
	Source	KII	Nigeria ATASP 1 SESA Summary	KII	VCDP Programme design report	KII

³⁰ Anambra has a Women in Agriculture department that organizes nutrition training across programmes e.g. in VCDP and FADAMA. Such trainings include the importance of consumption of Vitamin A Fortified Cassava.

	Analysis	-	-	-	-	-
	Score	1	1	1	1	0
Is the program integrated with another program? ³¹	Evidence	The fertilizer is merged with the ACAI ³² research program of IITA ³³	The program proposes complementary initiatives such as reforestation, production of organic manure, health and HIV/AIDS mainstreaming, agroforestry and stream bank stabilisation	Works in partnership with ICRISAT, IITA and Africa Rice	The program will be in close linkage with other VCDP projects such UNDP facility for Inclusive markets, USAID MARKETS ³⁴ , World bank funded MSMEs ³⁵	None, except the structures of the ministry of agriculture in the state
	Source	KII	Nigeria ATASP 1 SESA Summary	KII	VCDP Programme design report	KII
	Analysis	-	-	-	-	-
Inclusion of nutrition indicators	Score	0	0	0	0	0
	Evidence					
	Source	KII	Nigeria ATASP 1 SESA Summary	KII	VCDP Programme design report	KII
	Analysis	-	-	-	-	-
Total		4	5	4	5	5

³¹ All the program utilises Agricultural Development Program which is where extension workers are situated.

³² ACAI – African Cassava Agronomy Initiative

³³ IITA – International Institute of Tropical Agriculture

³⁴ MARKETS - Maximizing Agricultural Revenue in Key Enterprises and Targeted Sites

³⁵ Micro, Small and Medium Enterprises

Table B: Potential to be nutrition sensitive of agricultural programs in Anambra state

Targeting		SASAKAWA	ATASP I	FADAMA II AF I	IFAD VCDP	HarvestPlus
Can the program target under five and women?	Score	1	1	1	1	1
	Evidence	The programs currently have special consideration for women already				
	Source	KII	ATASP	KII	VCDP programme design report	KII
	Analysis	Special support could be given to families with under five children.				
Efficacious Intervention						
Are there known efficacious interventions through established pathways	Score	1	1	1	1	1
	Evidence	Income generation through increased output	Increased income through application of training on GAPS ³⁶	Increased income	Values chain development of cassava leading to increased income	Increased income Increased nutritional status though the consumption of the crops
	Source	KII	Nigeria ATASP 1 SESA Summary	KII	VCDP program design report	KII
	Analysis	-	-	-	By aiming to strengthen the value chain of a staple crop, the program ensure that multiple households and individuals can make sustainable livelihoods through the value chain	-
Implementation						
Is the program implemented as planned?	Score	1	1	1	1	1
	Evidence	The programs are on target to meet their goals.				
	Source	KII	Nigeria ATASP 1 SESA Summary	KII	VCDP program design report	KII
	Analysis				-	
Utilization						
	Score	1	1	1	1	1
	Evidence	Different farming cooperatives exist and are beneficiaries of the program				

³⁶ GAPS – Good Agricultural Practices

Do the targeted population benefit from the program?	Source	KII	Nigeria ATASP 1 SESA Summary	KII	VCDP program design report	KII
	Analysis					
Impact						
Does the program have high coverage of targeted population?	Score	1	1	1	1	1
	Evidence	About 100 farmer groups with a range of 10-25 people	Farmer groups	Farmer groups	Farmer groups	3000 framers in harvestplus
	Source	KII	KII	KII	KII	KII
	Analysis	-	-	-	-	-
Sustainability						
Is the program sustainable?	Score	1	1	1	1	1
	Evidence	Farmers (and their cooperatives) are always eager to participate. Highly sustainable due to different donors funding backing all the projects. They all do have different exit strategies. Governments are bound by a signed memorandum where the contribute funding to the program execution				
	Source	KII	Nigeria ATASP 1 SESA Summary	KII	VCDP program design report	KII
	Analysis	While they all have exit strategy well thought out and ready to be implemented on exit. The lack of sustainability especially in gains made by past programs leaves some doubt on sustainability beyond the life span of the programs				
Total		6	6	6	6	6

Table C: Nutrition sensitivity of programs implemented by the ministry of agriculture in Kebbi State

Environment		IFAD CASP	ATASP I	FADAMA III AF I	CARI
Identified Local Governments from the Phase 1 analysis	Score	1	1	1	1
	Evidence	Some LGA among the high or average burden LGA			
	Source				
	Analysis				
Under five children	Score	0	0	0	0
	Evidence	No reference or mention of under-fives	No reference or mention of under-fives	No reference or mention of under-fives	No reference or mention of under-fives
	Source	IFAD CASP President report 2013	Nigeria ATASP 1 SESA Summary		CARI matching Fund projects
	Analysis		-		
Pregnant and lactating mothers	Score	1	0	0	0
	Evidence	Training on traditional foods with regards pregnant and lactating women	No mention of pregnant women	No mention of pregnant women	No mention of pregnant women
	Source	KII	Nigeria ATASP 1 SESA Summary		CARI matching Fund projects
	Analysis		-		
Are there activities that can impact on nutrition?					
Are planned activities going to lead to a change in nutritional status if implemented	Score	1	1	1	1
	Evidence	Farmer field and business schools Community based seed production Climate change adaptation measure.	Infrastructure providing access to markets and health Commodity value chain development	Providing funds for assets acquisition Infrastructure provision Crop production	Value chain development
	Source	IFAD CASP President report 2013	Nigeria ATASP 1 SESA Summary	KII	CARI matching Fund projects
	Analysis	Income pathway	Adequate road network can aid the accessibility to markets which will improve income for farmers. Accessibility and availability of health care post will enable the timely utilization in time of emergencies	Income pathway	Increased income through better value chain

			Value chain of the focused crops will improve its availability		
Enabling women					
Does the programme promote women's nutritional status, social and overall empowerment?	Score	1	1	1	1
	Evidence	Gender categorisation in activities and impact analysis	Th program focuses on Nigerian youths and women	100% matching fund for women	Training of women in additional economic activities in the rice value chain
	Source	IFAD CASP President report 2013	Nigeria ATASP 1 SESA Summary	KII	CARI matching Fund projects
	Analysis	-	-	-	Additional capacity building will contribute to increases in women empowerment
Is the programme linked to health and nutrition services or any behavioural communication change (BCC)?	Score	1	1	1	0
	Evidence	Continued gender and nutritional training	Health training during the cooperatives meeting It will also rehabilitate primary healthcare centres		No mention of this in the document
	Source	IFAD CASP President report 2013	Nigeria ATASP 1 SESA Summary	KII	CARI matching Fund projects
	Analysis	-	-	-	-
Is the program integrated with another program?	Score	1	1	0	1
	Evidence	IFAD CASP is a follow up of IFAD CBARD	The program proposes complementary initiatives such as reforestation, production of organic manure, health and HIV/AIDS mainstreaming, agroforestry and stream bank stabilisation		Linked to ATASP
	Source	IFAD CASP President report 2013	Nigeria ATASP 1 SESA Summary	KII	KII
	Analysis	-	-	-	-
Inclusion of nutrition indicators	Score	0	0	0	0
	Evidence	-	-	-	-
	Source	IFAD CASP President report 2013	Nigeria ATASP 1 SESA Summary	KII	KII
	Analysis	-	-	-	-
Total		6	5	4	4

Table D: Potential of agricultural programs in Kebbi State to be nutrition-sensitive

Targeting		IFAD CASP	ATASP 1	FADAMA II AF 1	CARI
Can the program target under five and women? Efficacious Intervention	Score	1	1	1	1
	Evidence	The programs all currently have some form of concession for women			
	Source				
	Analysis	-	-	-	-
Are there known efficacious interventions through established pathways Implementation	Score	1	1	1	1
	Evidence	Income increase through community-based landscape approach	Income increase through training	Income increase through asset acquisitions and value chain development	Income increase through value chain development
	Source				
	Analysis	Crops of interest similar across interventions. No interventions on agrodiversity and dietary diversity pathway to nutrition			
Is the program implemented as planned? Utilization	Score	1	1	1	1
	Evidence	All the programs have strict implementation plans and implementation teams			
	Source				
	Analysis	These programs are mostly country loans and/or grants of which the state is a partner state. The state contributes matching funds to the projects and while the some of the state structures and human resources are used in implementation. The main implementers are the agency granting the loan/grant			
Do the targeted population benefit from the program Impact	Score	1	1	1	1
	Evidence	Farmer groups involved			
	Source	KII	KII	KII	KII
	Analysis	-	-	-	-
Does the program have high coverage of targeted population? Sustainability	Score	1	1	1	1
	Evidence	In most cases, they are oversubscribed in the LGA and communities where the programs are implemented.			
	Source	KII	KII	KII	KII
	Analysis	-	-	-	-

Is the program sustainable from the demand side?	Score	1	1	1	1
	Evidence	The farmers to join farmer groups and cooperatives and be part of the programs. CASP will build capacity of the farmer groups, Community Development Associations so that they can continue relationship with markets and private sector when IFAD has pulled out. The parent program of CASP - CBARDP began in the last administration			
	Source	IFAD CASP's presidents report 2013	KII	KII	KII
	Analysis	As in Anambra State, the exit strategy is of concern, on how gains made during the program can be sustained. Defaulting MOU ³⁷ with development partners are not a norm among elected officials.			
	Total	6	6	6	6

³⁷ MOU - Memorandum of Understanding

Table E: Nutrition sensitivity of programs implemented by the Ministry of Education in Anambra State

Targeting		Early child care centres	HGSF	SEPIP
<i>Does it target groups with the highest malnutrition?</i>				
Identified local governments from the Phase 1 analysis?	Score	1	1	1
	Evidence	The schools in all LGA of the state	School feeding is done in all schools in the state	All schools in the state are involved
	Source			
	Analysis	-	-	-
Under-five children	Score	1	0	0
	Evidence	Provision is only made for children the 3-5 to be part of public primary schools in Nigeria in the document. But the schools also have pre-Ecce classes though utilisation is low	The program only focuses on primary 1-3 school children	No special focus on under-fives
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	HGSF strategic plan 2016 - 2020	SEPIP PID
	Analysis	-	It has potential to aid malnutrition and improve school attendance in young school children. It can be stepped down to also include Nursery 1-3	-
Pregnant and lactating mothers	Score	0	0	0
	Evidence	No programmatic interest on pregnant and lactating mothers	No focus on pregnant and lactating mothers	No focus on pregnant and lactating mothers
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	HGSF strategic plan 2016 - 2020	SEPIP PID

	Analysis	Early registration to the ECCE can begin from pregnant and lactating women counselled on importance of ECCE during pre and post-natal teachings at the health centres.	Could incorporate pregnant and lactating women or their husbands/spouses.	-
Are there activities that can impact on nutrition?				
<i>Are planned activities going to lead to a change in nutritional status if implemented?</i>	Score	1	1	1
		Parenting education through the centres Nutrition is included as a basic service delivery sector who should visit the centres regularly and among other things help in training the centre workers. Other sectors include water, environmental sanitation and health.	- Providing children needed nutrients - Providing smallholders and workers with income which can impact nutritional status of children in the household	The program strengthens the quality of education in participating states Aids in teacher retention Formation of the School Based Management Committee (SBMC) in the schools.
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	HGSF strategic plan 2016 – 2020, HGSF – The journey so far	SEPIP PID

	Analysis	These activities act as growth monitoring platform entry point. And as avenue for parents' knowledge creation	Daily nutritious food for the children will ensure that malnutrition is curbed. Income generation pathway to adequate malnutrition will also come into play by local sourcing of food and employment	Improving the quality of education will enhance the future earning potential of the students which will help improve the nutritional status of the next generation
Does the programme promote women's nutritional status, social and overall empowerment?	Score	0	0	0
	Evidence	No mention is made of women status with regard the program.	No special mention is made of women status, empowerment or gender	It benefits all students without focus on female students
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	HGSF inauguration document and implementation report	SEPIP PID
	Analysis	The program has no direct bearing on women status but sustained interest in education begins in childhood	Employing a gender-based focus in procurement and employment has a potential for helping women nutrition status and empowerment in the communities.	-
	Score	1	0	1

Is the programme linked to health and nutrition services or any behavioural communication change?	Evidence	The program is linked to the health and nutrition sector and to the water and environmental sanitation sectors. The water ministry installs boreholes in schools for sanitation purposes. Annual immunization campaigns utilise the schools to reach a larger number of under-five population.	No special mention is made of behavioural changes. The nutrition of the children is one of the aims of the program	The program has inaugurated the SBMC in schools which has increased parent's participation in their children's education.
	Source	Nigeria ECCE programmes: A UNESCO profile 2006 Key Informant	HGSF inauguration document and implementation report and HGSF: The journey so far	SEPIP PID
	Analysis	-	-	-
Is the programme integrated with another programme?	Score	1	0	0
	Evidence	It not directly with another program. But it is attached to the public primary schools ensuring education continuity. On implementation levels, ministries such as health, environment and water are involved.	The programme is not linked to another programme, but 4 other ministries are involved in the program implementation at the federal level – health, justice, agriculture, budget and planning. At the state and community school level, the agriculture and health ministry are expected to play a role.	Not currently integrated with another program
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	HGSF the journey so far	SEPIP PID
	Analysis	Multisectoral implementation is necessary for the stimulation sought to be created.	Adequate implementation must involve active participation of sectors listed above	-

Inclusion of nutrition indicators	Score	1	1	0
	Evidence	Growth Monitoring meant to influence nutritional status	Nutritional status improvement one of the aims of the HGSF	No mention of nutrition goals or indicators
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	HGSF the journey so far	SEPIP PID
	Analysis	-	-	-
		6	3	5

Table F: Potential of education programs in Anambra State to be nutrition-sensitive

Targeting		Early childhood centres	Home grown school feeding	SEPIP
Can the program target under five and women?	Score	1	1	0
	Evidence	Currently targets 3-5-year olds	Currently target only primary school pupils	No current focus on under-fives or women
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	Home Grown School feeding: The journey so far 2017	SEPIP PID
	Analysis	It can include 0-2-year olds and women through parent's teacher meetings	The school feeding can be extended to cover the children in early childhood centres	-
Efficacious Intervention				
Are there known efficacious interventions through established pathways	Score	1	1	1
	Evidence	Early stimulation and care, WASH facilitation in caregiving	School feeding for pupils in government schools	Improved quality of education
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	Home Grown School feeding: The journey so far 2017	SEPIP PID
	Analysis	-	School feeding can aid in augmenting home feeding while increasing school attendance	This increased quality of education has an indirect impact on the nutritional status of the students and their children.
Implementation				
Is the program implemented as planned?	Score	1	1	1
	Evidence	The schools and facilities run as expected. But lack of teachers and learning equipment affected quality.	Anambra state one of the states that has begun implementation. While the quality and fidelity of implementation is unknown, the	The SMBC are in place.
	Source	Key Informant Interview of the ECCE desk officer	Home Grown School feeding: The journey so far 2017	KII
	Analysis	Though the schools are implemented. There's room for improvement, especially to meet with the standards laid out in the National Policy on Education.	HGSF is going on in state as is seen in the schools, but the affirmation that things are implemented form the officers is not enough to assess the fidelity. More information is needed mainly on quality of the HGSF.	-
Utilization				
	Score	1	1	1

Do the targeted population benefit from the program	Evidence	The pupils in school currently benefit from the ECCE	All pupils in the said classes benefit from the HGSF	The students in the schools are all beneficiaries of the program
	Source	Key informant interview	Key Informant Interview	SEPIP PID
	Analysis	While some problems exist in the implementation, all the children that come to school are attended to as much as possible.	-	-
Impact				
Does the program have high coverage of targeted population?	Score	1	1	1
	Evidence	All government schools in that state has ECCD class, except government schools managed by the churches who specifically requested to manage the schools	The program covers all the schools in the state	All schools in the state benefited from the quality program.
	Source	Key Informant Interview	HGSF the journey so far	KII
	Analysis	-	-	-
Sustainability				
Is the program sustainable from the demand side?	Score	1	0	1
	Evidence	The population of enrolled children keeps increasing. The ASUBEB has enshrined a division of ECCD in the department of academic services. It is contained in the National Policy on Education.	Demonstrated keenness of school children regarding the feeding. There are reported concerns on the federal govt taking claims of the gains of the HGSF alone in that state, while the state govt also contributes. As it is not enshrined in a policy or law. It is likely to be scrapped. A school feeding was initiated in the administration of president Obasanjo and it was scrapped, or it died down after a while.	The schools have continued the practices established by the program. The Ministry of education has continued to use the model of quality improvement established by the program. The program began in the last administration and is still running in the current administration. The chances are low that it will be interrupted before the end date.
	Source	A document showing increase in ECCD enrolment was seen. KII National Policy on Education	KII	KII

	Analysis	More demand can be created if additional awareness is created during enrolment period	To be sustainable, the program must be institutionalised	-
Total		6	5	5

Table G: Nutrition sensitivity of programs implemented by the ministry of education in Kebbi State

Education		Early Childhood Care centres	Secondary School feeding ³⁸	Enhanced feeding
Targeting				
Identified Local Governments from the Phase 1 analysis	Score	1	1	1
	Evidence	All LGAs in the state are involved		
	Source	KII - UBEC	KII – PRS	KII - PRS
	Analysis	-	-	-
Under five children	Score	1	0	0
	Evidence	Provision is only made for children the 3-5 to be part of public primary schools in Nigeria	This age group are not beneficiaries. Only students enrolled in the state secondary schools are fed	The only beneficiaries are pupils in all primary schools
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	PRS dept., Ministry of Education Kebbi state	PRS dept., Ministry of Education Kebbi state
	Analysis	It can be extended to include 0-2 children.	-	-
Pregnant and lactating mothers	Score	0	0	0
	Evidence	No programmatic interest on pregnant and lactating mothers	This demographic are not beneficiaries. Only students enrolled in the state secondary schools are fed	Women are not included
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	PRS dept., Ministry of Education Kebbi state	PRS dept., Ministry of Education Kebbi state
	Analysis	The program could begin with facility-based monitoring of lactating mothers and then move to school based.	-	-
Are there activities that can impact on nutrition?				
Are planned activities going to lead to a change in nutritional status if implemented	Score	1	1	1
	Evidence	Nutrition is included as a basic service delivery sector who should visit the centres regularly and among other things	Daily feeding of all students enrolled in the state owned secondary schools.	Distribution of meat (protein source) during fasting period

³⁸ More information is needed about the implementation to determine the last questions.

		help in training the centre workers. Other sectors include water, environmental sanitation and health.		
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	PRS dept., Ministry of Education Kebbi state	PRS dept., Ministry of Education Kebbi state
	Analysis	These activities act as growth monitoring platform entry point. And as avenue for parents' knowledge creation	This will contribute to adequate adolescent health.	This will aid adolescent nutrition especially during fasting period.
Enabling Women				
Does the programme promote women's nutritional status, social and overall empowerment?	Score	0	0	0
	Evidence	No current of women empowerment evidence		
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	KII	KII
	Analysis	-	-	-
Use nutrition-sensitive program as a delivery platform for nutrition-specific intervention				
Is the programme linked to health and nutrition services or any behavioural communication change (BCC)	Score	1	1	1
	Evidence	The program is linked to the health and nutrition sector and to the water and environmental sanitation sectors.	The programs deliver nutrients to adolescents in schools	The program delivers nutrients during fasting period
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	KII	KII
	Analysis	-	-	-
Integrating different sectors				
Inclusion of nutrition indicators	Score	1	1	1
	Evidence	An avenue for growth monitoring	Preventing malnutrition an objective of the program	Preventing malnutrition an objective of the program
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	PRS dept., Ministry of Education Kebbi state	PRS dept., Ministry of Education Kebbi state
	Analysis	-	-	-
Total		6	4	4

Table H: Potential of Kebbi state education programs to be nutrition-sensitive

Targeting		Early childhood centres	Secondary School Feeding	Enhanced feeding
Can the program target under five and women?	Score	1	0	1
	Evidence	Currently targets 3-5-year olds	The program is strictly for secondary school students in govt schools	The program is only for students
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	KII	KII
	Analysis	It can include 0-2-year olds and women through parent's teacher meetings	-	It can include the early childhood care centres.
Efficacious Intervention				
Are there known efficacious interventions through established pathways	Score	1	1	1
	Evidence	Early stimulation and care, WASH facilitation in caregiving	Adolescent feeding	Young children and adolescent feeding
	Source	Nigeria ECCE programmes: A UNESCO profile 2006	KII	KII
	Analysis	-	-	-
Implementation				
Is the program implemented as planned?	Score	1	1	1
	Evidence	Pupils attend school where they exist	Funding is provided for the program annually and the program is executed	Funding is provided for the program annually and the program is executed
	Source	KII	KII	KII
	Analysis	-	-	-
Utilization				
Do the targeted population benefit from the program	Score	1	1	1
	Evidence	The targeted age groups attend the school though enrolment is not optimal	Students get fed and meet their nutrient needs	Students get protein source as supplementation to home food during fasting
	Source	KII	KII	KII
	Analysis	-	-	-
Impact				
Does the program have high coverage of targeted population?	Score	0	1	1
	Evidence	ECCD not in all primary schools in the state	School feeding done in all the secondary in the state	Feeding done in all schools in the state during Ramadan.

	Source	KII	KII	KII
	Analysis	-	-	-
Sustainability				
Is the program sustainable?	Score	1	1	1
	Evidence	Beneficiaries continually utilise these programs. The structures exist to continue implementation. They have existed and supported by numerous administrations		
	Source	KII	KII	KII
	Analysis	-	-	-
Total		5	5	6

Table I: Nutrition Sensitivity Assessment of programs implemented in the Ministry of Environment Anambra State

Targeting		EH	Ecology	Forestry	Water
Does it target groups with the highest malnutrition?					
Identified local governments from the Phase 1 analysis?	Score	1	1	1	1
	Evidence	The programs spread across all the Local governments	The programs spread across all the Local governments	The programs spread across all the Local governments	The programs spread across all the Local governments
	Source	Policy guidelines on school sanitation 2005, National Environmental sanitation policy 2005, Policy guideline on sanitary inspection of premises 2005, Policy guidelines on market and abattoir sanitation 2005, Anambra state public health law 2006	Key Informant Interview	Key Informant Interview	State Water Law
	Analysis	-	-	-	-
Under-five children	Score	0	0	0	0
	Evidence	No demographic or gender is focused on	No demographic or gender is focused on	No demographic or gender is focused on	No demographic or gender is focused on
	Source	Policy guidelines on school sanitation 2005, National Environmental sanitation policy 2005, Policy guideline on sanitary inspection of premises 2005, Policy guidelines on market and abattoir sanitation 2005, Anambra state public health law 2006	Key Informant Interview	Key Informant Interview	State Water Law
	Analysis	Though the program isn't targeted, efforts can be made to inspect premises or clusters with children more.	-	-	-
Pregnant and lactating mothers	Score	0	0	0	0
	Evidence	No demographic or gender is focused on	No demographic or gender is focused on	No demographic or gender is focused on	No demographic or gender is focused on

	Source	Policy guidelines on school sanitation 2005, National Environmental sanitation policy 2005, Policy guideline on sanitary inspection of premises 2005, Policy guidelines on market and abattoir sanitation 2005, Anambra state public health law 2006	Key Informant Interview	Key Informant Interview	State Water Law
	Analysis	-	-	-	-
Are there activities that can impact on nutrition?					
Are planned activities going to lead to a change in nutritional status if implemented?	Score	1	1	1	1
	Evidence	Sanitation and Hygiene activities	Includes the restoration or prevention of land loss to erosion which will affect soil quality and thus productivity of farmers	Includes the protection of the state's agrobiodiversity Also encourages food farming in forest plots	Includes the provision of adequate water facilities to the state's population
	Source	Policy guidelines on school sanitation 2005, National Environmental sanitation policy 2005, Policy guideline on sanitary inspection of premises 2005, Policy guidelines on market and abattoir sanitation 2005	KII	KII	Water Law
	Analysis	Correct implementation of the environmental health could reduce the prevalence of diarrhoea, rate of infection in children.	Adequate implementation needed to prevent the soil loss to erosion	It could include promotion of forest foods and different interventions that improve nutrition through adequate use of forest resources	Clean and safe water important for malnutrition reduction
Enabling women					
Does the programme promote women's nutritional status, social and overall empowerment?	Current	0	0	0	0
		No special gender is mentioned to receive priority in the program	No special gender is mentioned to receive priority in the program	No special gender is mentioned to receive priority in the program	No special gender is mentioned to receive priority in the program

	Source	Policy guidelines on school sanitation 2005, National Environmental sanitation policy 2005, Policy guideline on sanitary inspection of premises 2005, Policy guidelines on market and abattoir sanitation 2005	KII	KII	Water Law
	Analysis	-	-	It could also be used to empower women financially	-
Use nutrition-sensitive programme as a delivery platform for nutrition-specific intervention					
Is the programme linked to health and nutrition services or any behavioural communication change (BCC)?	Current	1	1	0	1
	Evidence	Information education and communication (IEC) materials are to be displayed at strategic places in the market	IEC sensitizing the population on dangers of erosion and how to mitigate against it is part of the budget	Not linked with any program	WASH clubs and awareness creation in schools were carried out in the past
	Source	Policy guidelines on market and abattoir sanitation 2005	KII	KII	KII
	Analysis	Continued BCC and IEC is important for programs to be imbibed wholly	-	IEC on dangers of deforestation important.	-
Integrating different sectors					
Is the programme integrated with another programme?	Current	1	0	1	1
	Evidence	It is not linked with another program, but the guideline lists that the environmental health officers at the local government levels will be trained by staff of the ministry of health. Plans to establish school environmental health clubs.	None currently existing	It is meant to work together with food security and agricultural program	They work with different ministries especially schools in provision of portable water to where non-exists.
	Source	National Environmental sanitation policy 2005	KII	KII	KII

	Analysis	It can help to link it to health ministry. Or include environmental sanitation lecturers to primary health centre health classes.	-	A linkage with the agriculture ministry would promote agroforestry as an intervention. A linkage with the MoH will help promote edible forest food	-
Inclusion of nutrition indicators	Score	1	0	0	0
Total	Evidence	Optimum well-being	None known		
	Source	National Environmental sanitation policy 2005	KII	KII	KII
	Analysis	-	-	-	-
	Total	5	3	3	4

Table J: Potential of program implemented in Ministry of Environment Anambra State to be nutrition-sensitive

Targeting		Environmental Health	Ecology	Forestry	Water	
Can the program target under five and women?	Score	1	0	1	0	
	Evidence	Primarily for the general population				
	Source	National Policy on Environment	KII	KII	Water Law	
	Analysis	A nutrition-sensitive approach would be to focus on cluster with more children and women	-	It can be aligned to helping women's nutritional and social status in communities where the reserves exist and through state wide agroforestry	-	
Efficacious Intervention						
Are there known efficacious interventions through established pathways	Score	1	1	1	1	
	Evidence	Sanitation and Hygiene activities	Includes the restoration or prevention of land loss to erosion	Includes the protection of the state's agrobiodiversity Also encourages food farming in forest plots	Includes the provision of adequate water facilities to the state's population	
	Source	Policy guidelines on school sanitation 2005, National Environmental sanitation policy 2005, Policy guideline on sanitary inspection of premises 2005, Policy guidelines on market and abattoir sanitation 2005	KII	KII	Water Law	
	Analysis	This delivers cleaner environments especially in premises and households	-	Could be used to deliver livelihoods opportunity to rural dwellers	-	
Implementation						
Is the program implemented as planned?	Score	0	0	0	0	
	Evidence	Obstacles of poor resources and poor institutional support hinder adequate implementation			Only skeletal implementation of guarding the forest reserves is currently in place. Poor resources and poor institutional support also plays a role here	Current lags in implementation of the new Law because of water workers court case
	Source	KII	KII	KII	KII	
	Analysis	There is a need to address barriers to financial and human resources. Support is needed for the department to carry out their routine duties				-
Utilization						
	Score	0	0	0	1	

Do the targeted population benefit from the program	Evidence	Evidence of routine duties not done			Evidence of water projects embarked on
	Source	KII	KII	KII	KII
	Analysis	Effective BCC can help increase utilization but that hinges on better implementation of programs	Effective BCC can help increase utilization but that hinges on better implementation of programs	Effective BCC can help increase utilization but that hinges on better implementation of programs	-
Impact					
Does the program have high coverage of targeted population?	Score	0	1	0	1
	Evidence	Programs are meant to be implemented in all LGA, but current implementation is short of ideal	All active erosion sites in the state are documented	Though the government has forest reserves in different parts of the state, it does not cut across all LGA	The state has different bodies responsible for water in the state – RUWASSA, STOWA and the Urban Water
	Source	KII	KII	KII	Water Law
	Analysis	While it is supposed to cover the 21 LGA, the coverage is very low.			
Sustainability					
Is it sustainable?	Score	1	1	1	1
	Evidence	The state population are used to providing their own EH services without the supervision of the people in charge. Where erosions exist, communities do write for aid or mitigate it themselves. The demand for forestry services are almost non-existent. Some of the state population have gone to provide themselves of portable water where possible. As ministry departments with portfolio these departments have been in existence since the creation of the state and stands little chance scrapped. As it obtains currently, only skeletal services are provided, and this might affect sustainability. Continually institutional structures exist to monitor the provision of water supply or provide water supply			
	Source	KII	KII	KII	KII
	Analysis	-	-	-	-
Total		3	3	3	4

Table K: Nutrition sensitive assessment in Ministry of Environment Kebbi state

Environment		Environmental Health	Forestry & Aff	Environment	Solid Minerals	Water
Targeting						
Identified Local Governments from the Phase 1 analysis	Score	1	1	1	1	1
	Evidence	Activities carried out in all the LGAs of the state				
	Source	KII	KII	KII	KII	KII
	Analysis	-	-	-	-	
	Score	0	0	0	0	0
Under five children	Evidence	No demographic focused on				
	Source	National Training Manual and Trainer' guide on food sanitation MoE Kebbi state 2006	KII	KII	KII	List of water projects executed by the current administration
	Analysis	-	-	-	-	-
	Score	0	0	0	0	0
	Evidence	No gender focused on				
Pregnant and lactating mothers	Source	Policy guidelines on school sanitation 2005, National Environmental sanitation policy 2005, Policy guideline on sanitary inspection of premises 2005, Policy guidelines on market and abattoir sanitation 2005	KII	KII	KII	List of water projects executed by the current administration
	Analysis	-	-	-	-	-
Are there activities that can impact on nutrition						
Are planned activities going to lead to a change in nutritional status if implemented	Score	1	1	1	1	1
	Evidence	Sanitation and Hygiene activities	Wood serves at least 95% of the state as fuel	Plantations and orchards developed in a view to fight afforestation are also source of edible food	Cooperatives of women miners serve as income avenue for women, who otherwise were unemployed	Availability of clean water

	Source	Policy guidelines on school sanitation 2005, National Environmental sanitation policy 2005, Policy guideline on sanitary inspection of premises 2005, Policy guidelines on market and abattoir sanitation 2005	KII	KII	KII	KII
	Analysis	Correct implementation of the environmental health could reduce the prevalence of diarrhoea, rate of infection in children.	Without alternative and the strict implementation against deforestation, 95% using wood fuel would be affected	Plantation can contribute to healthy diets	The cooperative will increase women income	Access to clean water can reduce the incidence of infection.
Enabling women						
Does the programme promote women's nutritional status, social and overall empowerment?	Score	1	1	0	1	1
	Evidence	No special gender is mentioned to receive priority in the program	No special gender in the afforestation dept, but the state is involved in the great green way program that cuts across states and countries in the Sahara Desert. Here, women are empowered for vegetable gardening	No special gender concern	Women in mining are helped in to forming cooperatives to access loans	No special gender consideration
	Source	Policy guidelines on school sanitation 2005, National Environmental sanitation policy 2005, Policy guideline on sanitary inspection of premises 2005, Policy guidelines on market and abattoir sanitation 2005	KII	KII	KII	KII
	Analysis	-	-	-	-	-
	Use nutrition-sensitive programme as a delivery platform for nutrition-specific intervention					

Is the programme linked to health and nutrition services or any behavioural communication change (BCC)?	Score	1	1	1	0	0
	Evidence	Information education and communication (IEC) materials are to display at strategic places in the market	Messages on dangers of deforestation	Seasonal sensitization	none	none
	Source	Policy guidelines on market and abattoir sanitation 2005	KII	KII	KII	KII
	Analysis	Continued BCC and IEC is important for programs to be imbibed wholly	Potential for medicine	-	-	-
Integrating different sectors						
Is the program integrated with another program?	Score	1	1	1	1	1
	Evidence	It is not linked with another program, but the guideline lists that the environmental health officers at the local government levels will be trained by staff of the ministry of health	Works with the agriculture ministry Also, for student training	Works with agriculture ministry especially horticulture during production of seedings	Ministry of lands Ministry of water Ministry of industry and intra-ministry collaboration with their dept	The water department works closely with schools and Ministry of agriculture.
	Source	National Environmental sanitation policy 2005	KII	KII	KII	KII
	Analysis	It can help to link it to health ministry. Or include environmental sanitation lecturers to primary health centre health classes.	-	-	-	-
Inclusion of nutrition indicators	Score	1	1	0	0	0
	Evidence	Optimum well-being	Promotes adequate nutrition			
	Source	National Environmental sanitation policy 2005	KII	KII	KII	KII
	Analysis	-	-	-	-	-
Total		6	6	4	4	4

Table L: Potential programs in the ministry of environment to be nutrition-sensitive in Kebbi state

Targeting		Environmental Health	Forestry & Afforestation	Environment	Solid Minerals	Water Resources	
Can the program target under five and women?	Score	1	1	0	1	0	
	Evidence	The program already carries out inspection of premises and markets	Does not target any demographic or gender	Does not target any demographic or gender	Forming women cooperatives for mining	Does not target any demographic or gender	
	Source	National Environmental sanitation policy 2005	KII	KII	KII	KII	
	Analysis	This inspection can be intensified in clusters or neighbourhoods with higher number of children	No yet they can include agroforestry as source of food and possible livelihood for women	-	-	-	
Efficacious Intervention							
Are there known efficacious interventions through established pathways	Score	1	1	1	1	1	
	Evidence	Sanitation and hygienic environment reduces the risk of infections	Forest foods and medicine. Assorted seedlings etc	Preservation of soil quality	Increased income	Provision of clean water	
	Source	National Environmental sanitation policy 2005	KII	KII	KII	KII	
	Analysis	-				-	
Implementation							
Is the program implemented as planned?	Score	0	0	0	0	0	
	Evidence	Depends on budget and priority of the govt of the day. Implementation quite erratic					
	Source	National Environmental sanitation policy 2005	KII	KII	KII	KII	
	Analysis	-	-	-	-	-	
Utilization							

Do the targeted population benefit from the program	Score	1	0	0	0	1
	Evidence	Yes, but magnitude varies. Factories and business premises visited more than private residences	Not much done			Numerous projects initiated and commissioned
	Source	KII	KII	KII	KII	List of water projects executed by the current administration
	Analysis	-	-	-	-	-
Impact						
Does the program have high coverage of targeted population?	Score	0	1	0	0	1
	Evidence	Restricted by lack of staff	Highest coverage, in terms of distribution of the forest reserves in the state	Budget Magnitude Cost implications	Not yet, hindered by fund	Yes
	Source	KII	KII	KII	KII	List of water projects executed by the current administration
	Analysis	-	-	-	-	-
Sustainability						
Is the program sustainable?	Score	1	0	0	0	1
	Evidence	People bring complaints to us for environmental nuisance	The policymakers do not really know the importance of these.			People submit notice when their water is spoilt
	Source	KII	KII	KII	KII	KII
	Analysis	-	-	-	-	-
Total		4	3	1	2	4

Table M: Nutrition sensitivity of programs in the Welfare Sector in Anambra state

		Child Development	Women Affairs	Social Welfare	Rehabilitation
Targeting					
Identified Local Governments from the Phase 1 analysis	Score	0	1	0	0
	Evidence	No geographical targeting is involved in the activities here. That said the main functions and activities of the ministry are at the state secretariat with annexes at LGAs. The women affairs has few annexes outside the headquarters			
	Source	KII	KII	KII	KII
	Analysis	-	-	-	-
Under five children	Score	1	0	0	1
	Evidence	Activities here target children up to 18 years.	Children not included in program here	Children not included in program here	Under fives with special needs are also catered for
	Source	KII	KII	KII	KII
	Analysis	Special focus can be paid to OVCs	-	-	-
Pregnant and lactating mothers	Score	0	0	1	0
	Evidence	Only children considered in programs here	Programs here target women, women generally no special attention is paid to pregnant/lactating women	Program here focus on the vulnerable population, including homeless pregnant and lactating teenagers/mothers are also provided with shelter and homes	No special targeting of pregnant and lactating mother
	Source	KII	KII	KII	KII
	Analysis	-	Programs here can be modified to pay attention to pregnant and lactating mother	-	Special targeting is also needed for pregnant and lactating disabled women
Are there activities that can impact on nutrition?					
Are planned activities going to lead to a change in nutritional status if implemented	Score	1	1	1	1
	Evidence	Nutritional status	Income skills for youth and women	Homes for vulnerable children and women	Homes and skills centres for the disabled
	Source	KII	KII	KII	KII

	Analysis	-	Further interventions are needed to ensure that the most vulnerable population of the state benefits from the skills acquisition		Increased focus on nutritional status and adequacy of people with special needs.
Enabling women					
Does the programme promote women's nutritional status, social and overall empowerment?	Score	0	1	1	1
	Evidence	Activities here's does not involve women	Women celebrations here promote the social status of women Skills acquisition for youths here improve the financial independence of graduates	The family courts operated here ensures that women are not abused	Female disabled are equipped with skills to make income
	Source	KII	KII	KII	KII
	Analysis	-	-	-	-
Use nutrition-sensitive programmes as a delivery platform for nutrition -specific interventions					
Is the programme linked to health and nutrition services or any behavioural communication change (BCC)	Score	0	1	0	0
	Evidence	No integration with any services or BCC	They bring in people to deliver health talks to the students during the programs.	No integration with any services or BCC	No integration with any services or BCC
	Source	KII	KII	KII	KII
	Analysis	-	It would help to being in experts from the ministry of health and not just anybody	-	-
Is the program integrated with another program?	Score	0	1	0	0
	Evidence	No integration currently exists	Works with the Ministry of Health and the Nigerian Directorate of Employment	No integration currently exists	No integration currently exists
	Source	KII	KII	KII	KII
	Analysis	-	Integration with the MOH is important, so also is the link with the	The surveillance on social welfare needs to work with	-

			Ministry of agriculture as some programs have processing on the value chain development	schools in identifying pupils in need and helping them find help	
Inclusion of nutrition indicators	Score	1	1	0	0
	Evidence	Optimum well-being	Promotes adequate nutrition	No mention on nutrition goals or indicators	
	Source	KII	KII	KII	KII
	Analysis				
		3	6	5	3

Table N: Potential of programs in Ministry of Social Welfare Anambra State to be nutrition-sensitive

Targeting		Child development	Women Affairs	Social Welfare	Rehabilitation
Can the program target under five and women?	Score	1	1	0	1
	Evidence	Activities here target under five children already	Activities here currently target women already	The family courts and marriage counselling clinics are for everybody.	Rehabilitation of persons with special needs in the state.
	Source	KII	KII	KII	KII
	Analysis	-	-	This activity can be streamlined to use the presence of under-five children in households as deciding factors	Improvements here would be to improve the rehabilitation of women with special needs especially pregnant and lactating women and focus on the children. No focus is currently made to children with special needs.
Efficacious Intervention					
Are there known efficacious interventions through established pathways	Score	1	1	0	1
	Evidence	Program that prevent child neglect and nutrition	Building the skills of youth and women	Current core is the family courts and marriage counselling. Motherless babies' homes are an appendage	Rehabilitation of people with special needs
	Source	KII	KII	KII	KII
	Analysis	Including the child's right to nutrition aspect can improve the nutrition-sensitivity of this department	-	-	-
Implementation					
Is the program implemented as planned?	Score	1	1	1	1
	Evidence	To some extent the lack of resources affects delivery	Though celebration has been reduced. The skills acquisition is still operational	The activities here are carried out as should be	Rehabilitation homes exist in the state
	Source	KII	KII	KII	KII
	Analysis	-	-	-	-
Utilization					
	Score	1	1	1	0

Do the targeted population benefit from the program	Evidence	Children's day celebration held annually	Evidence of classes being held	Evidence of family courts and motherless homes	Evidence of rehabilitation homes but not enough to benefit the people in need
	Source	KII	KII	KII	KII
	Analysis	Provision of adequate resources and establishing the place of these programs in aiding nutrition is vital in ensuring that the population benefit from the programs			
Impact					
Does the program have high coverage of targeted population?	Score	0	0	0	0
	Evidence	Available only at the state secretariat.	Coverage is limited to the state secretariat and few LGA leaving out the bulk of the state	Coverage is restricted to the state secretariat	There are still high number of people with needs not accessing the homes
	Source	KII	KII	KII	KII
	Analysis		Increase in funding would help scale and coverage	Increase in funding would help scale and coverage	Increase in sensitization will create on awareness on existing facilities.
Sustainability					
Is the program sustainable?	Score	1	0	1	1
	Evidence	Certain challenges face the sustainability such as decline in Number of people attending the training yearly. The departments and their programs have been in existence despite political changes			
	Source	KII	KII	KII	KII
	Analysis	-	Lacking sensitization and lack of scholarships affecting participation from the poorer population	-	Special attention need to be given to special needs children as they are vulnerable and likely to more malnourished
Total		5	4	3	4

Table O: Nutrition-sensitivity of program implemented by the ministry of welfare in Kebbi State

Environment		Child Development	Women affairs	Social Welfare
Identified Local Governments from the Phase 1 analysis	Score	1	1	1
	Evidence	Activities cover the entire state. Though rehabilitation, remand and juvenile homes are in selected places.		
	Source	Ministry of Welfare hand-over note	Ministry of Welfare hand-over note	Ministry of Welfare hand-over note
	Analysis	-	-	-
Under five children	Score	1	0	0
	Evidence	The program target children from birth till 18	Does not target children	Does not target children
	Source	PRS dept	PRS dept	PRS dept
	Analysis	-	-	-
Pregnant and lactating mothers	Score	0	0	0
	Evidence	Does not target any demographics apart from children	Does not necessarily target this demographic but they do benefit from the programs	Does not necessarily target pregnant but women, but they can benefit
	Source	PRS dept	PRS dept	PRS dept
	Analysis	-	-	-
Are there activities that can impact on nutrition?				
Are planned activities going to lead to a change in nutritional status if implemented	Score	1	1	1
	Evidence	Children celebrations OVC support if the project continues	Income through the welfare grant and skills acquisition	Income for disabled Social welfare for the elderly
	Source	KII	KII	KII
	Analysis	One of the responsibilities include championing children's right, which can help the nutrition narrative in the state	Youth and women skills acquisition Is an income pathway vital for adequate nutrition of the women and their children.	Special activities here can help the nutritional status of the special persons and the elderly
Does the programme promote women's nutritional status, social and overall empowerment?	Score	0	1	1
	Evidence	Women not involved	Yes, it aims to improve the earning potential of women	Women are involved in activated implemented here
	Source	KII	KII	KII
	Analysis	-	-	-
Is the programme linked to health and nutrition services or any	Score	1	1	0

behavioural communication change (BCC)	Evidence	A recent activity on OVCs focused on their health and livelihood	One day every week during the training is set asides for health training	No health, nutrition or BCC involved
	Source	KII	KII	KII
	Analysis	-	-	-
Is the program integrated with another program?	Score	0	0	0
	Evidence	No other program or ministry involved	No other program or ministry involved	No other program or ministry involved
	Source	KII	KII	KII
	Analysis	-	-	-
Inclusion of nutrition indicators	Score	1	1	0
	Evidence	Optimum well-being	Promotes adequate nutrition	
	Source	KII	KII	KII
	Analysis	-	-	-
Total		5	6	3

Table P: Potential of programs in the ministry of social welfare Kebbi state to be nutrition-sensitive

Targeting		Child Development	Women Affairs	Social Welfare
Can the program target under five and women?	Score	1	1	1
	Evidence	This program targets children of all ages.	Currently, the program only benefits women and youth	The program benefits all gender
	Source	PRS dept	PRS dept	PRS dept
	Analysis	It can be aligned to increase activities involving under five children	-A deliberate attempt to enrol women from the most vulnerable communities will impact more on nutrition	This can be strengthened to increase impact on women
Efficacious Intervention				
Are there known efficacious interventions through established pathways	Score	1	1	1
	Evidence	Child rights advocacy OvCs	-Vocational training - Take of grants	Rehabilitation of person with special needs and provision of funds to the elderly.
	Source	KII	KII	KII
	Analysis	-	The training and take-off grant are important for beginning their own centre from which they can earn income	-
Implementation				
Is the program implemented as planned?	Score	1	1	1
	Evidence	Everything goes as planned even though at a small scale		Implementation at larger scale here. With the spread of the homes in different regions of the state
	Source	KII	KII	KII
	Analysis	-	-	-
Utilization				
Do the targeted population benefit from the program	Score	1	1	0
	Evidence	Number of OVCs keeps increasing	Yes, they benefit from the program	Yes, people motive he.
	Source	KII	KII	KII
	Analysis			
Impact				
Does the program have high coverage of targeted population?	Score	0	1	1
	Evidence	Yes	Women and youth at the 21 LGA all have training in their LGA though at some it is a miniature of the more extended training at the capital	Yes
	Source	KII	KII	KII

	Analysis			
Sustainability				
Is the program sustainable from the demand side?	Score	1	1	1
	Evidence	Yes	The programs are always filled	Yes
	Source	KII	KII	KII
	Analysis	-	-	-
Total		5	6	5

Appendix 7: Summary of nutrition-sensitivity and potential in study state

Agriculture programmes

Criteria	States	Finding	Improvements
Targeting	Anambra	No current of families with under-five children	Could be expanded to ensure active recruitment of framers or farmer groups with under children and LGA with highest malnutrition burden
	Kebbi	All programs except IFAD CASP select LGA comparative agricultural production advantage	
Efficacious Intervention	Anambra	Most programs focus on training, provision of input, development of value, promotion of nutrition foods	Careful selection of programme pathways to ensure that the bulk of all investments are not focused on cassava, rice and maize as currently obtains
	Kebbi		
Women nutritional, social, and overall empowerment	Anambra	Women participation adequately factored in	Continued overall women empowerment support
	Kebbi		
Linkage to nutrition-specific programs or BCC	Anambra	Most of the programmes have nutrition education components and where absent the role is carried out by the Ministry of Agriculture	Expansion of nutrition contact training to ensure that topics are adequately covered. Careful monitoring of the nutrition training and constant evaluation to measure knowledge, attitude and practice gained.
	Kebbi		
Integration with another program	Anambra	Increased chances of integration with research	Conditional integration with other sectors to deliver nutrition. Such as linking ECD attendance as a condition for programme qualification or Ante-natal care
	Kebbi		
Implementation	Anambra	Excellent implementation with available programme manuals, indicators, midterm reports among others	Continued strict implementation and sharing of lessons learned
	Kebbi		

Utilization	Anambra	Evidence of ample utilisation abound; some programs have gone to exceed their targets	Continued monitoring of utilisation
	Kebbi		
Coverage	Anambra	Coverage is low, about less than one-third of all LGAs chosen for each program	Increased funding would aid increase coverage
	Kebbi		
Sustainability	Anambra	Unsure utilisation at the exit of donor funding	Early assimilation of other government bodies prior to funding end
	Kebbi		

Summary of Nutrition-sensitivity and potential of Social Welfare programmes in the Study States

Criteria	States	Finding	Improvements
Targeting	Anambra	Different components target different groups – children, women, youths and people with special needs	Could incorporate a stronger focus on parents with under-five children, OVCs and poverty-ridden LGA
	Kebbi		
Efficacious Intervention	Anambra	The programme here includes children’s welfare and rights advocacy, social welfare, women’s cause advancement and empowerment and rehabilitation	Could be used to champion care issues such as the right to maternity and paternity leaves
	Kebbi		
Women nutritional, social, and overall empowerment	Anambra	The components here are interested in women’s social and overall empowerment – the social welfare and women affairs components	Needs to address such issues in the media consistently.
	Kebbi		Move a step further from celebrations to effectively advocating for women’s rights and issues
Linkage to nutrition-specific programmes or BCC	Anambra	Varies depending on components, the skills acquisition component includes nutrition education.	Could be used to deliver BCC
	Kebbi		
Integration with another programme	Anambra	No known integration with other programs	The social welfare departments need to work together with the school to detect child abuse cases, malnutrition cases requiring attention among others
	Kebbi	The child development had previously worked with the Ministry of Health and the State Agency for Control of HIV/AIDS on the welfare of OVCs	
Implementation	Anambra	Average implementation, most activities here are a fundamental celebration of days (Children’s day, women day etc) instead of actual activities	Stronger implementation when advancing the rights for a healthy living might include active detection of malnutrition and ensuring that rehabilitation is reached.
	Kebbi		
Utilisation	Anambra	Varies greatly and is depend on coverage and access	Active and effective media campaign could be used to increase utilisation LGA could be made to sponsor students again as they did in the past.

	Kebbi	Great utilisation	Consider resuming the supplementation of daily N200 for students' transportation cost
Coverage	Anambra	Abysmal coverage, the centre is located in the state's capital and only recently has 3 new centres been opened in rural areas.	Increased funding would be needed to scale up coverage
	Kebbi	Excellent coverage exists in all LGA of the state	Commitment here, would be increased the overage of course offered
Sustainability	Anambra	The decrease in utilization might endanger the sustainability	It is highly sustainable dependent on continued government support
	Kebbi	Have existed through several governments	

Summary of Nutrition-sensitivity and potential of Education programs in the Study States

Criteria	States	Finding	Improvements
Targeting	Anambra	Programmes here exist in all schools in all LGA in the state	Could incorporate women better
	Kebbi	Some programmes in the state are not found in all school in the state	Needs to target under five more and work on ensuring that no child is left of the ECD program
Efficacious Intervention	Anambra	Provision of early childhood development education, Home has grown School feeding and quality improvement programs	The ECD could also be used to deliver household care practices to the parents
	Kebbi	Provision of early childhood development education, feeding to secondary school students and enhanced feeding during Ramadan.	Students feeding could be extended to include ECD as had been done in the past
Women nutritional, social, and overall empowerment	Anambra	None of the programs expressly improves women	Strong conscientious commitment is needed to improve women participants?
	Kebbi		Strengthening women participation and girl child education would help women empowerment including adult classes for young girl parents
Linkage to nutrition-specific programmes or BCC	Anambra	No parents BCC implemented	Strengthened parents' participation must also be used for delivering parental skills important for nutrition and WASH campaigns can also extend to parents
	Kebbi	The Ministry of Health uses the Mothers Association of the school to teach home management skills	Extending the already existing parent's skill building through school to include nutrition education and the likes. .
	Anambra		

Integration with another program	Kebbi	The ECD and HGSF partner with other Ministries such as Ministry of Agriculture, and Ministry of Health, among others	Convergence of sectors and programs aimed at improving nutrition is important if maximum effects are to be achieved
Implementation	Anambra	Severe Inputs shortages affecting the ECD, though other programs have adequate input available	Implementation barriers need to be evaluated and addressed
	Kebbi		
Utilization	Anambra	High utilisation	Careful and continued monitoring and evaluation of utilisation trends and factors to ensure higher utilisation
	Kebbi	Marginally average utilisation	Conditionality with other programs will improve utilisation
Coverage	Anambra	Adequate coverage of all programs	Continued political commitment to maintain coverage
	Kebbi	ECD education not available in all schools in the state	Need to scale up the ECD education to all primary schools in the state
Sustainability	Anambra	The HGSF might not be sustainable, having begun in this administration	Continued political advocacy to institutionalise the HGSF
	Kebbi	Programs here have been suitable despite government changes	Continued political commitment is needed to ensure that programs remain sustainable

Summary of Nutrition-sensitivity and potential of WASH programs in the Study States

Criteria	States	Finding	Improvements
Targeting	Anambra	The programs here do not primarily target any age group or gender or LGA	Could incorporate a stronger focus to locations with a higher population of under-five and pregnant and/or lactating women
	Kebbi		
Efficacious Intervention	Anambra	The Programs here have proven pathways through which they indirectly influence nutrition	Investigating clusters of malnutrition and poverty without adequate water supply for targeting might prove beneficial for reduction of water-related infections Agroforestry can further invest in agrobiodiversity especially of traditional crops and foods.
	Kebbi	In addition to known water, sanitation programs, the state also houses the department of solid mineral in the WASH sector	
Women nutritional, social, and overall empowerment	Anambra	No special gender consideration	Special attention to the role that forests can play in women empowerment and creation of livelihoods for women would improve nutrition. Advancement of consumption of forest foods can also improve dietary diversity
	Kebbi		
Linkage to nutrition-specific programs or BCC	Anambra	Lack of IEC materials and/or media advocacy on WASH components	Strong government commitment and support from external donors are needed to embark on BCC campaign on WASH components
	Kebbi	IEC materials and media advocacy on WASH components such as deforestation and environmental health	
Integration with another program	Anambra	The water components work with schools, there are also some prospects about health clubs, but the core Environmental components are not linked with any program	Programme linkage is essential to ensure that entire benefits that the nutrition-sensitive sectors have been accessed.
	Kebbi		

Implementation	Anambra	Almost zero implementation in all programs here except water	Institutions need to be revived, equipped, permitted to carry out their routine duties.
	Kebbi	Existing implementation is minimal and can be improved	Evaluation of the quality of implementation is important to enable consequent review and adaptation
Utilization	Anambra	With zero implementation, utilisation is almost at the barest	Adequate IEC and BCC campaigns will ensure that behaviours of utilisation improve
	Kebbi	Just as the level of implementation, utilisation is also minimal	
Coverage	Anambra	Coverage of programs here, cuts across all the 21 LGA in the states.	Committed political support to ensure that coverage in all LGA is sustained
	Kebbi		
Sustainability	Anambra	As programs existing in ministries, they have stood the test of political changes.	Improving delivery will ensure that service if any are utilised as should be
	Kebbi		

Appendix 8: In-depth interview guide for service delivery workers

Name of programme: Programme no.:

Ministry in charge of the programme:

Interview number:

Age of interviewee:

Education:

Gender:

Section A: Management and support services

1. How do programme managers at the state secretariat and the ministry support the planned activities to enable delivery of results?

- What do you think is the aim of your programme?
- Do you think your programme is achieving that aim?
- Do the programme managers at the state secretariat help?
- How do they help?

2. Do supervision and management occur as planned? To what extent?

- Who are your direct supervisors at the ministry?
- Do they visit here in a supervisory role?
- How often does that happen?
- How often are management meetings held?
- Who attends the meetings?

Section B: Training and capacity development

1. To what extent has training and capacity building been implemented?

- How many training sessions have you and other staff attended in the recent past?
- How often are these training sessions held?
- What are the contents of those training sessions you attended?
- Do you think they have helped?
- How can they be made better?

2. Who conducted the training sessions and who participated?

- Who oversaw the training sessions?
- Where were they held?
- Who were the participants?

Section C: Service delivery fidelity

1. Workers' workload

- Do you have sufficient workers?
- Do you think the workload is more than they can handle?

2. Demand for nutrition services

- Are the services provided accessed by citizens?
- What is the rate of service uptake?

3. Equipment and work aid

- What equipment do you have here?
- Is it sufficient?
- Apart from what you listed, are there other work aids that are provided for you?
- What other equipment or work aids would make this programme function better?

Appendix 9: Exit interview guide for service delivery beneficiaries

1. What is the level of different programme components to the users met at the service delivery point?
 - What programme did you come for?
 - Did you get the service you wanted?
 - Were you well attended to?
2. How often do they utilise the programme?
3. What are their perceived benefits?
 - Are you happy with what you gained from the programme?

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Appendix 10: Observation guide

Section A: Nutrition sensitivity of the programme

1. Targeting
 - Does the programme target those with high malnutrition (high burden local government area) and most vulnerable (under-fives and pregnant and/or lactating women)?
2. Nutrition goals to maximise opportunities
 - Which activities in these programs can impact on nutrition?
 - How do the planned activities lead to a change in nutrition?
 - Are the nutrition indicators (if existing) being used in monitoring and evaluation?
3. Enabling women
 - What evidence on the ground shows that women's nutritional status, social and overall empowerment are being improved?
4. Nutrition-sensitive programmes as a delivery platform
 - What evidence is there on the ground to show that the programme is linked to nutrition/health/Behavioural Communication Change?
5. Integrating different sectors
 - What other programmes are the current programme integrated with?

Section B: Potential of the programme to be nutrition-sensitive

1. Targeting
 - Can the programme be worked out to target under-fives and pregnant and/or lactating women more?
2. Efficacious interventions
 - What interventions are included in the programmes?
 - Are they known efficacious interventions through established pathways?
3. Implementation
 - Are the programmes implemented as planned?
 - If not, what is the situation?
4. Utilisation
 - Who are the beneficiaries of the programme?
 - Does it impact on child nutritional status?
5. Impact
 - What is the expected outcome of the programme?
 - Does it impact on children's nutritional status?
6. Coverage

- Does the programme achieve high coverage of the targeted population?

7. Sustainability

- Is the programme sustainable from the demand side?
- Is the programme sustainable from the supply side?
- Is the programme sustainable through political changes?

Section C: Fidelity to programme document

1. Are the programmes implemented as rolled out?
2. Are the services being utilised?
3. To what extent are the document guidelines followed?

Appendix 11: Suggested areas for improvement for programs

Program	State	Programme Implementation	Programme Input
Early Childhood Development Education	Federal level	<p>Continuous ECD teacher training as happened with primary school teachers through the NTI</p> <p>Consider canvassing for a portion of the country’s education fund to be set aside for Early Childhood Education and managed by Universal Basic Education Commission</p> <p>Regenerate interest in the National Policy for Integrated Early Childhood Development (IECD) which is the multisectoral policy that includes education, health, nutrition and child protection sectors</p>	<p>Explore the possibility of increasing ECD teacher training courses in institutions of the higher country different from primary teacher training</p> <p>Provide high impact research grants for evaluation, RCTs, cohort studies on ECD</p>
	Both States	<p>Work with other programs to increase ways to motivate parents to send their children to school</p> <p>Enhance the quality assurance (monitoring and evaluation) of ECD component in the schools</p> <p>Ensure the set-up of the State and LGA IECD committees and integrate them with the state and LGA Committee for Food and Nutrition.</p> <p>A child tracking system/database including all sectors can be developed to help track children's successes/failures from birth beginning with birth registration</p>	<p>-Employ more ECD teachers and caregivers</p> <p>Include more in-service training for the teachers and caregivers</p> <p>-Investigate the opportunities to find funding to classroom inputs such as teaching aids, adequate chairs/tables, play tools, stimulation equipment is among others</p> <p>- Explore working with other programs and the numerous ways such linkage might work such as harmonising media advocacy</p>

		<p>Provision of Growth monitoring equipment for the schools and availability of the MUAC tape in every classroom</p> <p>Provide high impact research grants for evaluation, RCTs, cohort studies on ECD</p>
LGA	Provide additional support on recruitment	
Anambra	Provide nutrition training for parents during PTA meetings	Furthermore, from 2 above see strategic community investment in ECD in a different community, which can include community fundraising, use of the community funds etc
Kebbi	<p>Improve the selection of teachers for the training (especially ensure that each teacher attends at least one training every year or two years)</p> <p>Increase the amount and frequency of nutrition-related training for parents</p> <p>Aggressive recruitment of pupils to ensure no child of school age is abandoned through courtesy visits, church and mosque announcements, town crier, influential community members</p> <p>Continuous community drive using community health workers or community volunteers to ensure sustained enrolment and reduce the drop-out rate</p> <p>Targeted drive at the LGA lives especially in rural LGAs with high inequity.</p>	<p>Consider scaling up availability of ECD to ensure that all existing primary schools have a functional ECD</p> <p>As a malnutrition hotspot, establish community ECD in closer range to the population where access to available school-based ECD is farther than usual for the pupils.</p> <p>Consider a state-wide analysis to determine the profile of out-of-school pupils, this will help in the development of a wholesome strategy to target their recruitment.</p> <p>Embrace an innovative approach that takes the Muslim values into account in the curriculum; and utilise this as a selling point in marketing and recruitment of pupils.</p>

Environmental Sanitation	Federal	Include the Ministry of Environment into the National Committee for Food and Nutrition; send a memo to the states for subsequent addition of the ministry at the state and LGA levels.	
	Both States	<p>Consider relocating the waste management board or agency from their current domiciled places to the department of environmental health for better synergy or ensure that the linkage between the waste agency and the environmental sanitation team is strong</p> <p>Include messages (more messages for Kebbi, as it currently exists) on the importance of environmental sanitation</p> <p>Embark on state-wide campaign on environmental sanitation</p> <p>Support the LGA team to restart environmental inspection</p> <p>Improved quality assurance (or monitoring and evaluation) of environmental health officers at their various zones /LGA to ensure due implementation of routine duties</p> <p>Explore numerous opportunities of convergence with other sectors through school clubs, training at the primary healthcare clinic, training of farmers clubs etc</p> <p>The strict utilisation of developed indicators in report writing and for programme monitoring, evaluation and adaption.</p>	<p>Consider employing qualified environmental health officers</p> <p>Establishment of the state technical committee on environmental sanitation as stated in the National Policy on Environmental Sanitation 2006</p> <p>Link with the LGA environmental health officers and ensure that monthly reports are submitted and reviewed</p> <p>Ensure that the state submits environmental reports to the federal committees twice a year</p> <p>Develop indicators for measuring programme output and outcomes</p> <p>Provide training for existing environmental health officers</p>

	LGA	Reorganise the environmental sanitation inspection to homes and markets especially clusters with a high population of under-five children	Establishment of the Local Government Technical Committee on Environmental Sanitation as stated in the National Policy on Environmental Sanitation 2006
	Kebbi	-	Employ more female environmental health officers Consider turning the state Environmental Task Force to State technical committee on environmental sanitation to adopt the activities in the National Policy
	Anambra	The yearly production of IEC materials for behavioural change awareness campaigns Investigate possible ways of ensuring that institutional duties in the Ministry are executed by Ministry staff and not hijacked by consultants	Divide Anambra State into zones like ASWMA zones, post staff to those zones Equip the environmental sanitation department of the Ministry of Environment with vehicles, motorcycles and other input for routine sanitation exercises.
Agricultural Transformation Agenda Support Programme 1	Federal	Enhance faster release of ATASP imported equipment	
	Both States	Include male and females in the nutrition training sessions Investigate ways of converging with other programs and how farmers can benefit from other programs or sectors	Include more training in business management and ensuring that all farmers benefit from it Consider linking with other programs and/or ministry to provide for training on nutrition, environmental sanitation, education etc especially off-season
	Kebbi	Improve farmer's group access to anchor borrowers and Bank of Industry loan for farmers	Consider employing more female agricultural extension agents
	Anambra	Enhance nutrition training to include optimal IYCF practices and micronutrient nutrition	Ensure that all farm produce is bought by offtakes

Skills Acquisition	Federal	<p>Consider possible accreditation of the skills acquisition programme by the NABTEB</p> <p>Refine the skills acquisition programme to if possible ensure uniformity</p>	
	Both States	<p>Create awareness on the existence of the skills program; and embark on aggressive recruitment using formal and informal media and strategies.</p> <p>Refine the nutrition and health education classes in the skills acquisition programme to be conducted by some trained personnel from the nutrition department and to include visual material and demonstration on IYCF, micronutrition nutrient, adolescent nutrition among others.</p> <p>Refine the examination of the programme to include adequate knowledge of the nutrition training</p> <p>Strict use of developed indicators in monitoring, evaluation and programme adaptation</p>	<p>Explore real convergence with other nutrition-sensitive sectors like education, agriculture and environment through welfare monitoring of schools etc</p> <p>Utilise other programmes as a platform to identify more vulnerable citizens in need of skills acquisition training</p> <p>Incorporate money and business management principles and training as part of the skills acquisition</p> <p>Develop indicators for measuring programme output and outcomes</p>
	LGA	<p>Enhance recruitment of unemployed youth and women into the skills acquisition program</p>	
	Kebbi	<p>Follow up students to ensure that skills acquired are used and it provided real employment for the graduates</p>	<p>Consider if a more extended training programme and opportunity to learn more than skill would serve better than the current modules of 6 months training</p>
	Anambra	<p>Organise the alumni into cooperatives and assist them to access the Bank of Industry loan</p>	<p>Provide skills acquisition centres in all LGA in the state.</p> <p>In-service training of staff to keep them up-to-date</p> <p>Employ trained personnel for the skills acquisition program</p>

Appendix 12: Political Commitment and Opportunity Measurement – Rapid Assessment Tool Questionnaire

State: _____

Political commitment and priority of food and nutrition

A. Stated commitment of key leadership

1	In the past year, has the governor and/or other high officials spoken publicly about food and nutrition problems at least twice?	Yes	No
	State governor		
	Other high officials, specify _____		
	First lady		
2	Have public campaigns been launched in the past year to raise awareness about food and nutrition related issues?		
	Which of the following issues has the governor or other high-level officials/celebrities mentioned in the past year in speeches? [Check all that apply]		
	<input type="checkbox"/> Undernutrition and/or malnutrition		
	<input type="checkbox"/> Stunting		
	<input type="checkbox"/> Wasting <input type="checkbox"/> Severe acute malnutrition <input type="checkbox"/> Overweight/obesity		
	<input type="checkbox"/> Maternal nutrition and/or adolescent girls		
	<input type="checkbox"/> Breastfeeding		
	<input type="checkbox"/> Complementary feeding		

	__ Vitamin A		
	__ Broad-based food distribution programmes		
	__ Water, sanitation and hygiene __ Food security __ Agriculture		
	__ Access to health services		
	__ Social protection		
	__ Micronutrients		
	__ Large-scale fortification		
	__ Multisectoral focus __ Integrated delivery		
	__ Education		
	__ Other, specify _____		
4	Please name one food and nutrition-related policy issue that has in your estimation received the most attention from government in the past year:		
5	Has the attention of high-level officials on food and nutrition problems increased, decreased or stayed about the same in the past year?	Increased	Decreased Stayed the same
6	Overall, how would you rate the current political support for food and nutrition programmes?	None 1	2 3 4 5 6 7 8 9 Strong 10
7	Thinking about how food and nutrition compare with other health issues, would you say that high-level officials have spoken publicly about food and nutrition	More often	Less often

	problems regarding the following health conditions in the past year?		
	Child survival		
	Water, sanitation and hygiene		
	Maternal mortality		
	HIV/AIDS		
	Social protection		
	Other _____		

B. Institutional commitment

		Yes	No	Comments
8	Is there a mechanism that coordinates multisectoral food and nutrition programming?			
8a	If no, has one been proposed?			
9	Has the state adopted a national food and nutrition policy?			
9a	If no, has one been discussed?			
9b	If yes, when did this happen? _____			
9c	If yes, has it been updated since being adopted?			
10	Has the state adopted a national food and nutrition plan of action?			
10a	If no, has one been proposed?			
10b	If yes, when did this happen? _____			
10c	If yes, has it been updated since being adopted?			
11	Is there a multisectoral food and nutrition programme currently operational in the country?			
11a	If no, has one been proposed?			
12	Is the national nutrition plan or strategy part of a national development plan?			
12a	If no, has this been proposed?			

13	Are there published national dietary guidelines?			
13a	If no, has this been proposed?			

C. Budgetary commitment

		No resources	Limited resources	Substantial but insufficient resources	Adequate resources to meet needs
14	Overall, how would you rate the resources available for food and nutrition programmes?				
15	How would you rate the resources available for following specific food and nutrition programmes and problem areas?				
	__ Undernutrition and/or malnutrition				
	__ Stunting				
	__ Wasting				
	__ Severe acute malnutrition				
	__ Overweight/obesity				
	__ Maternal nutrition and/or adolescent girls				
	__ Breastfeeding				
	__ Complementary feeding				
	__ Micronutrients				
	__ Broad-based food distribution programs				
	__ Water, sanitation and hygiene				

	<input type="checkbox"/> Access to health services				
	<input type="checkbox"/> Social protection				
	<input type="checkbox"/> Food security				
	<input type="checkbox"/> Agriculture				
	<input type="checkbox"/> Vitamin A				
	<input type="checkbox"/> Multisectoral focus <input type="checkbox"/> Integrated delivery				
	<input type="checkbox"/> Education				
	<input type="checkbox"/> Large scale fortification				
	<input type="checkbox"/> Other, specify				
16	Is there a budget-line for nutrition in the budget?	Yes		No	
16a	If yes, is this part of the health budget?				
16b	If no, has this been proposed?				
17	Are resources allocated according to priority guidelines including considerations of need, cost-effectiveness and available infrastructure?				

Agenda setting: Policy window of opportunity

A. Problem stream

Availability of credible indicators

1. In your estimation, how available are credible indicators of the extent of food and nutrition related problems? (*Credible indicators* are clear measures that demonstrate the severity of the problem and that can be used to monitor progress.)
 - Very available
 - Somewhat available

- Somewhat unavailable
 - Not available at all
 - Don't know
 - Other (please specify) _____
2. Have credible indicators of food and nutrition status been cited in media reports on food and nutrition in the last 12 months?
- Always
 - Often
 - Never
 - Not available
 - Don't know
3. Have policy advocates and/or high-level officials cited indicators showing the extent of food and nutrition problems to advance food and nutrition policy in the last 12 months?
- Yes (please give an example of the type of evidence invoked) _____
 - No
 - Don't know
 - Other (please specify) _____

Focusing events and public attention

4. Have there been any major events in the last year that have drawn attention to food and nutritional problems in the state?
- Yes (please describe briefly) _____
 - No
 - Don't know
 - Other (please specify) _____
5. Which of the following occurred in the past year (Check all that apply)?
- | | |
|---|---|
| ● ___ Food-related crises | ● ___ Visits by high-profile external actors |
| ● ___ Nutrition surveys | ● ___ Nutrition highlighted in the MDGs or other global initiatives |
| ● ___ Small-scale demonstrations and intervention studies on food and nutrition | ● ___ Famine |
| ● ___ Positive experiences with salt iodisation or vitamin A supplementation | ● ___ Financial crises |

- __ Windows via sector reform or policy dialogues
- __ National or international summits or conferences
- __ Other, specify _____

6. Thinking about public attention to the topic of food and nutrition problems, how much attention would you say has this topic received in the past year in the official (state) media, Anambra Broadcasting Service or Kebbi State Broadcasting Corporation?

- Very little (it is never or rarely discussed in any media outlets)
- Some talk and general writing on the topic in the newspaper, on radio and on television
- Substantial attention to the health conditions related to food and nutrition
- Other (please specify) _____
- Not applicable (e.g. freedom of the press is highly constrained)
- Don't know

7. How much attention would you say the topic of food and nutrition problems has received in the past year through other forms of public discourse (e.g. protests, social media)?

- Very little (it is never or rarely discussed in any popular discourse)
- Some attention, mainly from already mobilised groups
- Substantial criticism and popular disaffection with the current state of food and nutrition (please describe) _____
- Other (please specify) _____
- Don't know

External Framing (public portrayals that resonate with political leaders controlling resources)

8. How often do proponents of food and nutrition initiatives invoke each of the following in their advocacy efforts:

	Never	Rarely	Some-times	Frequently	Don't know	Not applicable	If sometimes or frequently, provide brief example
Centrality of food and nutrition to poverty reduction	0	1	2	3	6	9	

Cost-effectiveness of food and nutrition initiatives	0	1	2	3	6	9	
Unfavourable comparisons with other countries on food and nutrition progress	0	1	2	3	6	9	
Human rights (e.g. the right to food)	0	1	2	3	6	9	
Quantitative evidence highlighting the extent of the problem	0	1	2	3	6	9	
Qualitative experiences with food and nutrition-related health problems (e.g. vignettes and emotive pictures of starvation or diseases)	0	1	2	3	6	9	
Other _____	0	1	2	3	6	9	

Policy champions and advocacy

9. Is there a high-level advocate or influential individual who has taken on food and nutrition as a cause that he/she is currently (or within the past year) promoting?

Yes No

If yes, who? _____

10. Are there civil society groups that promote food and nutrition issues?

Yes No

10a. If yes, how influential are these groups?

- Very influential (have the ear of high-level policy makers, publicly visible)
- Somewhat influential
- Not very influential
- Not influential at all (little public visibility, do not communicate with policy makers)
- Don't know
- Other (please specify) _____

Cohesiveness of advocacy community

11. In your estimation, how cohesive would you say are advocates of food and nutrition in this country? (By *cohesive*, we mean the degree to which the policy community agrees on the definition of, causes of and solutions to the problem.)

- Very cohesive (all pushing for a common food and nutrition agenda)
- Somewhat cohesive
- Somewhat non-cohesive
- Not cohesive at all (competing advocacy messages, different areas within food and nutrition vying for attention, efforts not combined)
- Other (please specify) _____

B. Policy stream

Clear policy alternatives

29. Please select the option that best describes the status of policy alternatives regarding food and nutrition problems in the country. In marking your response, think about the government's policy agenda over the past year:

- A well thought out, coherent proposal has been put forward
- A variety of reform options have been discussed, but no coherent proposal has been advanced
- Potential policy solutions have not been discussed
- Don't know
- Other/comment/sources (please specify) _____

30. What are the three most prominent food and nutrition policy solutions that have been advanced in the past year?

- Policy 1 _____
- Policy 2 _____

- Policy 3 _____

	Very	Some-what	Not at all	Don't know
31. In your estimation, how technically feasible are the policies mentioned above to implement (<i>technical feasibility</i> refers to the practical feasibility given existing infrastructure, capacity and the need to coordinate across different sectors)?				
Policy 1				
Policy 2				
Policy 3				
32. In your estimation, how acceptable would the policies mentioned above be to the public at large?				
Policy 1				
Policy 2				
Policy 3				
33. In your estimation, how financially sustainable would the policies mentioned above be?				
Policy 1				
Policy 2				
Policy 3				

Policy entrepreneur

34. Is there an influential individual within the policy community who has been especially influential in promoting a particular food and nutrition policy (or set of policies) in the past year?

Yes No

If yes, who? _____

Cohesiveness of policy community

35. In your estimation, how cohesive would you say are proponents of these policy solutions? (By *cohesive*, we mean the degree to which the policy community agrees on the definition of, causes of and solutions to the problem.)

- Very cohesive (all pushing for a common reform agenda)
- Somewhat cohesive
- Somewhat non-cohesive
- Not cohesive at all (each proponent has its own policy proposal, efforts not combined)
- Don't know
- Other (please specify) _____

Internal framing (how policy community understands the problem among themselves)

36. How often would you say the following is true of food and nutrition policy experts in this country:

	Never	Rarely	Some-times	Frequently	Don't know	Not applicable	Provide brief example
Food and nutrition policy experts agree on a single framing issue to advance food and nutrition policy (e.g. right to food, women's empowerment, food insecurity)	0	1	2	3	6	9	
Food and nutrition policy experts agree on a common set of indicators to advance the food and nutrition cause	0	1	2	3	6	9	
Food and nutrition policy experts diverge in their support for multisectoral vs focused approaches	0	1	2	3	6	9	
Food and nutrition policy experts agree on the responsibilities of	0	1	2	3	6	9	

various ministries and organisations							
Other _____	0	1	2	3	6	9	

C. Political stream

Political transitions and openings

37. When are the next major executive elections scheduled to be held (year)? _____

- Not applicable (no major elections scheduled)
- Don't know

38. When are the next major legislative elections scheduled to be held (year)? _____

- Not applicable (no major elections scheduled)

39. When is the next budget scheduled (year)? _____

- Not applicable (no major elections scheduled)
- Don't know

External influences

40. How much financial and technical support has the country received from international agencies to address food and nutrition problems?

- A lot
- Some
- A little
- None received
- None – received some but rejected assistance
- Don't know
- Not applicable

Competing priorities

41. If the government had an extra 5 million dollars for health initiatives, which of the following categories would it be most likely to allocate the resources to first?

___ Food and nutrition

___ Social support

- ___ Water and sanitation
- ___ Maternal health
- ___ Health system strengthening
- ___ HIV/AIDS
- ___ Poverty reduction
- ___ Other_____

Stakeholder and institutional analysis

42. Thinking about the food and nutrition policy that has most recently been seriously discussed in the country, please indicate the likely position of each potential proponent and opponent of this food and nutrition policy. If there are other potential opponents or proponents not listed here, please indicate the name and level of opposition.

	Strongly support (2)	Moderately support (1)	Neutral (0)	Moderately opposed (-1)	Strongly opposed (-2)
Planning commission					
Ministry of Environment					
Minister of Health					
Ministry of Agriculture					
Ministry of Education					
Ministry of Social Development and Welfare					
All Progressive Congress (APC)					
People’s Democratic Party (PDP)					
All People’s Grand Alliance (APGA)					
FAO_____					
WFP_____					
WHO_____					
UNICEF_____					
Other 1, specify_____					
Other 2, specify_____					

43. Please characterise the level of power you believe each group has over the level of priority accorded to food and nutrition policy.

	HIGH (Ability to block policy advancement) (2)	MEDIUM (Ability to alter, but not block policy advancement) (1)	LOW (Little influence over whether policy advances or not) (0)
Planning commission			
Ministry of Environment			
Minister of Health			
Ministry of Agriculture			
Ministry of Education			
Ministry of Social Development and Welfare			
All Progressive Congress (APC)			
People's Democratic Party (PDP)			
All People's Grand Alliance (APGA)			
FAO _____			
WFP _____			
WHO _____			
UNICEF _____			
Other 1, specify _____			
Other 2, specify _____			

44. Please describe the ideological character of the party of the current executive (vis-à-vis other national political parties)?

- APC
- PDP
- APGA
- KOWA
- Other, specify _____

45. Please describe the ideological character of the majority party of current legislative branch (vis-à-vis other national political parties)?

- APC
- PDP

- APGA
- KOWA
- Other, specify _____

46. Depending on states' political institutions, there are different processes that legislation must pass through before it becomes adopted. For the following, please mark 1 if this actor can block the legislative passage of a bill. If not applicable, write NA:

___ State governor

___ State house of assembly

___ Other, explain _____

___ Policy can be adopted by executive decree and doesn't require legislative approval

47. Is a supermajority required to pass legislation?

- Yes
- No
- Don't know
- Other (please specify) _____

Source: Fox et al (2014)

Appendix 13: PCOM-RAT Score Sheet

Expressed Commitment

- q1a Head of the government has spoken publicly about food and nutrition problems at least twice. (1 point)
- q1b First lady has spoken publicly about food and nutrition problems at least twice. (1 point)
- q1c Other high officials, has spoken publicly about food and nutrition problems at least twice. (1 point)
- q2 Public campaigns have been waged in the past year to raise awareness about food and nutrition related issues. (1 point)
- q5 Attention of high level officials to food and nutrition problems has increased in the past year? (1 point)
- q6 Overall rating of current political support of the head of government for food and nutrition programs (7 or greater, assign 1)
- Q7 Thinking about how food and nutrition compares with other health issues, would you say that high level officials have spoken publicly about food and nutrition problems more or less often than the following health conditions in the past year? (1 point if spoken about more often than all other conditions)

Total Points

Institutional Commitment

- q8 An intersectoral mechanism that coordinates multisectoral food and nutrition programming exists (1 point)
- q8a One been proposed (0.5 points)
- q9 The country has adopted a national food and nutrition policy (1 point)
- q9a One been discussed (0.5 points)
- q10 The country has adopted a national food and nutrition plan of action (1 point)
- q10a One been proposed (0.5 points)
- QA There is a multisectoral food and nutrition program currently operational in the country (1 point)
- q11a One been proposed (0.5 points)
- q12 There is a national nutrition plan or strategy that is part of a national development plan (1 point)
- q12a One been proposed (0.5 points)
- q13 There are published national dietary guidelines? (1 point)
- q13a One been proposed (0.5 points)

Total Points

Budgetary Commitment

- q14 Overall rating of resources available for food and nutrition programs (if 3, assign 1 point)
- Rating of 3 for specific food and nutrition initiatives that the government has specifically prioritized
- q15 (50%+ rated 3, assign 1 point)
- q16 There is a budget-line for nutrition in the budget (1 point)

Total Points

Agenda Setting

Problem Stream

- q19 Credible indicators of food and nutrition status have been cited in media reports on food and nutrition in the last 12 months? (1 point if yes)
- q20 Have policy advocates and/or high level officials cited indicators showing the extent of food and nutrition problems to advance food and nutrition policy in the last 12 months? (1 point if yes)
- q21 Have there been any major events in the last year that have drawn particular attention to food and nutritional problems in the country? (1 point if yes)
- q23 Thinking about public attention to the topic of food and nutrition problems, how much attention would you say this topic has received in the past year in the official [state] media? (1 point if substantial)
- q24 How much attention would you say topic of food and nutrition problems has received in the past year through other forms of public discourse (e.g., protest, social media)? (1 point if substantial)
- q25 How often do proponents of food and nutrition initiatives invoke each of the following in their advocacy efforts:
- q25a Centrality of food and nutrition to poverty reduction (1 point if frequently)
- q25b Cost effectiveness of food and nutrition initiatives (1 point if frequently)
- q25c Unfavorable comparisons with other countries on food and nutrition progress (1 point if frequently)
- q25d Human rights (e.g., the right to food) (1 point if frequently)
- q25e Quantitative evidence highlighting the extent of the problem (1 point if frequently)
- q25f Qualitative experiences with the food and nutrition related health (1 point if frequently)
- q26 Is there a high-level “champion” or influential individual who has taken on food and nutrition as a cause that he/she is currently (or within the past year) promoting? (1 point if that person is influential, 2 points if it is the president)
- q27 Are there civil society groups that promote food and nutrition issues? (1 point if yes)

q28 In your estimation, how cohesive would you say are advocates of food and nutrition in this country? (if very cohesive, 1 point)

Total Points

Policy Stream

q29 Current status of policy alternatives: 1 point if a well thought out, coherent proposal has been put forward

q31 In your estimation, how technically feasible is policy 1 to implement [technical feasibility refers to the practical feasibility given existing infrastructure, capacity and the need to coordinate across different sectors]? (1 point if very feasible)

q32 In your estimation how acceptable would policy 1 be to the public at large? (1 point if very acceptable)

q33 In your estimation how financially sustainable would policy 1 be? (1 point if very sustainable)

q34 Is there an influential individual within the policy community who has been especially influential in promoting a particular food and nutrition policy (or set of policies) in the past year? (1 point if yes)

q35 Cohesiveness of policy community (1 point if very cohesive)

q36a Food and nutrition policy experts agree on a single framing issue to advance food and nutrition policy (e.g., women's empowerment, stunting, food insecurity, right to food). (1 point if frequently)

q36b Food and nutrition policy experts agree on a common set of indicators to advance the food and nutrition cause. (1 point if frequently)

q36c Food and nutrition policy experts diverge in their support for multisectoral versus focused approaches. (1 point if frequently)

q36d Food and nutrition policy experts agree on the responsibilities of various ministries and organizations. (1 point if frequently)

Total Points

Politics Stream

q37 Major executive elections happened within the past year or will happen within a year. (1 point if within next year)

q38 Major legislative elections happened within the past year or will happen within a year. (1 point if within next year)

q39 When is the next budget scheduled? _____ (1 point if within next year)

q40 How much financial and technical support has the country received from international agencies to address food and nutrition problems? (If a lot, assign 1)

q41 If the government had an extra 5 million dollars for health initiatives, which of the following categories would it be most likely to allocate the resources to first? (If nutrition, assigned 1)

Total Points

Stakeholder Analysis

q42 # of supporters outweighs # of opponents (1 point)

q43 Power of supporters outweighs power of opponents (1 point)

Policy Windows of Opportunity: Three Streams			
Problem Stream			
Credible Indicators (the existence of credible indicators in support of the problem)	Q18-20	<ul style="list-style-type: none"> • Have credible indicators of food and nutrition status been cited in media reports on food and nutrition in the last 12 months? (1) • Have policy advocates and/or high level officials cited indicators showing the extent of food and nutrition problems to advance food and nutrition policy in the last 12 months? (1) 	If 1+, assign a 1
Focusing events & Public Attention	Q21-24	<ul style="list-style-type: none"> • Have there been any major events in the last year that have drawn particular attention to food and nutritional problems in the country? (1) • Thinking about public attention to the topic of food and nutrition problems, how much attention would you say this topic has received in the past year in the official [state] media? (1 point if substantial) • How much attention would you say topic of food and nutrition problems has received in the past year through other forms of public discourse (e.g., protest, social media)? (1 point if substantial) 	If any focusing event or 2+, assign a 1
External Framing (public portrayals that resonate with political leaders controlling resources)	25a-f	<p>How often do proponents of food and nutrition initiatives invoke each of the following in their advocacy efforts:</p> <ul style="list-style-type: none"> • Centrality of Food and Nutrition to Poverty Reduction (1) • Cost Effectiveness of food and nutrition initiatives (1) • Unfavorable comparisons with other countries on food and nutrition progress (1) • Human rights (e.g., the right to food) (1) • Quantitative evidence highlighting the extent of the problem (1) • Qualitative experiences with the food and nutrition related health problems (e.g., vignettes and emotive pictures of starvation and diseases) (1) • Other _____ (1) 	If 2+, assign a 1
Political advocate	Q26-27	<ul style="list-style-type: none"> • Is there a high-level "champion" or influential individual who has taken on food and nutrition as a cause that he/she is currently (or within the past year) promoting? (1) • Are there civil society groups that promote food and nutrition issues? (1) 	1+, assign a 1
Cohesiveness of advocacy community	Q28	<ul style="list-style-type: none"> • In your estimation, how cohesive would you say are advocates of food and nutrition in this country? (Very cohesive=1) 	1+, assign a 1
		Total:	
Policy Stream			
	Q29-33	<ul style="list-style-type: none"> • Please select the option that best describes the current status of policy alternatives regarding food and nutrition problems in the 	If 2+, assign a 1

Clear policy alternatives		<p>country. In marking your response, think about the government's policy agenda over the past year:</p> <ul style="list-style-type: none"> • What are the three most prominent food and nutrition policy solutions that have been advanced in the past year? • In your estimation, how technically feasible is policy X to implement [technical feasibility refers to the practical feasibility given existing infrastructure, capacity and the need to coordinate across different sectors]? • In your estimation how acceptable would policy X be to the public at large? • In your estimation how financially sustainable would policy X be? 	
Policy entrepreneur	Q34	<ul style="list-style-type: none"> • Is there an influential individual within the policy community who has been especially influential in promoting a particular food and nutrition policy (or set of policies) in the past year? 	1+, assign a 1
Policy community cohesion Internal	Q35	<ul style="list-style-type: none"> • In your estimation, how cohesive would you say are proponents of these policy solutions? 	1+, assign a 1
Internal Framing (how the policy community views the problem)	Q36	<ul style="list-style-type: none"> • How often would you say the following is true of food and nutrition policy experts in this country: <ul style="list-style-type: none"> A. Food and nutrition policy experts agree on a single framing issue to advance food and nutrition policy (e.g., women's empowerment, stunting, food insecurity, right to food). (1) B. Food and nutrition policy experts agree on a common set of indicators to advance the food and nutrition cause. (1) C. Food and nutrition policy experts diverge in their support for multisectoral versus focused approaches. D. Food and nutrition policy experts agree on the responsibilities of various ministries and organizations. (1) 	2+, assign a 1
		Total:	
Politics Stream			
Political transitions	Q37-39	<ul style="list-style-type: none"> • When are the next major executive elections scheduled to be held (year)? _____ • When are the next major legislative elections scheduled to be held (year)? _____ • When is the next budget scheduled? _____ 	If 2+ in next year, assign a 1
External Influences	Q40	<ul style="list-style-type: none"> • How much financial and technical support has the country received from international agencies to address food and nutrition problems? (1) 	1+, assign a 1
Competing Priorities	Q41	<ul style="list-style-type: none"> • If the government had an extra 5 million dollars for health initiatives, which of the following categories would it be most likely to allocate the resources to first? Food and nutrition (1) 	1+, assign a 1
		Total:	

III. Stakeholder Analysis			
Interest group mobilization	Q42-43	<ul style="list-style-type: none"> • Thinking about the food and nutrition policy that has most recently been seriously discussed in the country, please indicate the likely position of each potential proponent and opponent of this food and nutrition policy. If there are other potential opponents or proponents not listed here, please indicate the name and level of opposition. • Please characterize the level of power you believe each group has over the level of priority accorded to food and nutrition policy. 	1+, assign a 1

Appendix 14: Validation Matrix for developed roadmap

Dear Stakeholder, please complete this form with relation to interventions in your state. Rate the statements in the table; choose one score. Indicate your comments next to each score. Each section also has a comment space at the end, feel free to use that. I may follow up with phone calls if necessary, to enable you to expand on ratings and comments.

Name:..... State

Ministry:

Position:Gender:

		2 Strongly agree	1 Agree	0 Neutral	-1 Disagree	-2 Strongly disagree	Comments
1	Understanding						
	Is the roadmap easy to understand?						
	Are there sections that you do not understand?						

	Are there tables that you do not understand?						
	Do you understand the maps?						
2	Translation						
	Is the roadmap appropriate to the target audiences?						
	Are the actions clearly defined by their sectors, responsibilities, and needs?						
	Does the plan take into consideration the context in which the plan will be used?						
	Does the budget allocate adequate financial support to implement the plan?						

3	Acceptability						
	Are you satisfied with the roadmap?						
	Do you perceive the document as appropriate?						
	Does the roadmap fit into your organisational culture?						
	Are there possible positive effects on your organisation?						
	Are there possible adverse effects on your organisation?						
4	Demand for a roadmap						
	Does the roadmap address actions, programmes and policies relate to your environment?						
	Do you intend to use the roadmap?						

	Do you perceive a demand from endusers of programmes when the roadmap is implemented?						
5	Implementation						
	Is it implementable?						
	Do you think all sections of the roadmap will be executed? Do list sections or actions that you think will not be executed in the comment box.						
	Will the roadmap be successfully executed?						
	Is the training of the staff sufficient for the roadmap implementation?						
6	Practicality						
	Can the existing financial resources be employed to implement the						

	roadmap?						
	Can the existing human resources be employed to implement the roadmap?						
7	Integration						
	Can the roadmap fit into your ministry's existing leadership structure?						
	Is the roadmap sustainable?						
	Do you perceive the additional cost needed for implementation as too high?						
8	Political buy-in						
	Would you support the adoption of the roadmap in your ministry?						

Adapted from Bowen et al (2009)

ADDENDUM

Harvard referencing Format 1



Contents

1. Harvard Referencing Basics: Reference List
2. Harvard Referencing Basics: In-Text
3. How to Cite Different Source Types
4. Ultimate Citation Cheat Sheet
5. Back to Citation Hub

Harvard Format Citation Guide

This is a complete guide to Harvard in-text and reference list citations. This easy-to-use, comprehensive guide makes citing any source easy. Check out our other citation guides on [APA](#) and [MLA 8](#) referencing.

[Back to top](#)

1. Harvard Referencing Basics: Reference List

A reference list is a complete list of all the sources used when creating a piece of work. This list includes information about the sources like the author, date of publication, title of the source and more. A Harvard reference list must:

- Be on a separate sheet at the end of the document
- Be organised alphabetically by author, unless there is no author then it is ordered by the source title, excluding articles such as a, an or the
 - If there are multiple works by the same author these are ordered by date, if the works are in the same year they are ordered alphabetically by the title and are allocated a letter (a,b,c etc) after the date
- Be double spaced: there should be a full, blank line of space between each line of text

[Back to top](#)

2. Harvard Referencing Basics: In-Text

In-text references must be included following the use of a quote or paraphrase taken from another piece of work.

In-text references are references written within the main body of text and refer to a quote or paraphrase. They are much shorter than full references. The full reference of in-text citations appears in the reference list. In Harvard referencing, in-text citations contain the author(s)'s or editor(s)'s surname, year of publication and page number(s). Using an example author James Mitchell, this takes the form:

Mitchell (2017, p. 189) states.. Or (Mitchell, 2017, p. 189)

(Note: p. refers to a single page, pp. refers to a range of pages)

Two or Three Authors:

When citing a source with two or three authors, state all surnames like so:

Mitchell, Smith and Thomson (2017, p. 189) states... Or

(Mitchell, Coyne and Thomson, 2017, p. 189)

Four or More Authors:

In this case, the first author's surname should be stated followed by 'et al':

Mitchell et al (2017, p. 189) states... Or (Mitchell et al, 2017, p, 189)

No Author:

If possible, use the organisation responsible for the post in place of the author. If not, use the title in italics:

Multiple works from the same author in the same Year:

If referencing multiple works from one author released in the same year, the works are allocated a letter (a, b, c etc) after the year. This allocation is done in the reference list so is done alphabetically according to the author's surname and source title:

(Mitchell, 2017a, p. 189) or Mitchell (2017b, p. 189)

Citing Multiple Works in One Parentheses:

List the in-text citations in the normal way but with semicolons between different references:

(Mitchell, 2017, p. 189; Smith, 200; Andrews, 1989, pp. 165-176)

Citing Different Editions of the Same Work in One Parentheses:

Include the author(s)'s name only once followed by all the appropriate dates separated by semicolons:

Mitchell (2010; 2017) states... Or (Mitchell, 2010; 2017)

Citing a Reference With No Date:

In this case simply state 'no date' in place of the year: (Mitchell, no date, p. 189).

Citing a Secondary Source:

In this case, state the reference you used first followed by 'cited in' and the original author:

Smith 2000 (cited in Mitchell, 2017, p. 189) or (Smith, 2000, cited in Mitchell, 2017, p. 189)

- In-text citations remain quite constant across source types, unless mentioned explicitly, assume the in-text citation uses the rules stated above
- Reference list references vary quite a lot between sources.

How to Cite a Book in Harvard Format

Book referencing is the simplest format in Harvard referencing style. The basic format is as follows:

- The title is italicised
 - The first letter of the first word is capitalised, after that only proper nouns are capitalised
- Author surname(s), initial(s). (Year Published) *Title*. Edition. Place of publication: publisher.
- Edition eg: 2nd edn.
-

Book Referencing Example:

Mitchell, J.A. and Thomson, M. (2017) *A guide to citation*. 3rd edn. London: London Publishings.

How to Cite an Edited Book in Harvard Format

Edited books are collations of chapters written by different authors. Their reference format is very similar to the book reference except instead of the author name, the editor name is used followed by (eds.) to distinguish them as an editor. The basic format is:

Editor surname(s), initial(s). (eds.) (Year Published). *Title*. Edition. Place of publication: publishers

Edited Book Example:

William, S.T. (eds.) (2015) *Referencing: a guide to citation rules*. New York: My Publisher

For citing chapters, you need to add the chapter author and chapter title to the reference. The basic format is as follows:

The chapter title is not italicised and within single quotation marks.

Author names. (Year published). 'Title of chapter' in editor(s) surname, initials (ed(s).) *Title of book*. Edition. Place of publication: publisher, page numbers.

Chapter in an Edited Book Example:

Troy B.N. (2015) 'Harvard citation rules' in Williams, S.T. (ed.) *A guide to citation rules*. New York: NY Publishers, pp. 34-89.

In-Text Citations: Chapter in an Edited Book

Use the chapter author surname, not the editor.

How to Cite an E-Book in Harvard Format

To reference an e-book, information about its collection, location online and the date it was accessed are needed as well as author name, title and year of publishing:

Author surname(s), initial(s). (Year published). *Title*. Edition. *Name of e-book collection* [online]. Available at: URL or DOI (Accessed: day month year).

The name of the e-book collection is italicised and followed by [online]

This is the date you accessed the book.

If the e-book is accessed via an e-book reader the reference format changes slightly:

Author surname(s), initial(s). (Year Published). *Title*. Edition. E-book format [e-book reader]. Available at URL or DOI (Accessed: day month year)

This includes information about the e-book format and reader, for instance this could be 'Kindle e-book [e-book reader]'.

Mitchell, J.A., Thomson, M. and Coyne, R.P. (2017) *A guide to citation. E-book library* [online]. Available at: <https://www.mendeley.com/reference-management/reference-manager> (Accessed: 10 September 2016)

How to Cite a Journal Article in Harvard Format

The basic format to cite a journal article is:

The title of the article is written within single quotation marks.

This is the title of the newspaper, in italics. Capitalise the first letter of each word.

Author names. (year) 'Title of article', *Title*, volume(issue/season etc), page numbers.

The volume number is written outside brackets and the issue or season number is written immediately after within brackets.

Journal Article Example

Mitchell, J.A. 'How citation changed the research world', *The Mendeley*, 62(9), p70-81.

Journal Article Online Example

Mitchell, J.A. 'How citation changed the research world', *The Mendeley*, 62(9) [online]. Available at: <https://www.mendeley.com/reference-management/reference-manager> (Accessed: 15 November 2016)

How to Cite a Newspaper Article in Harvard Format

Citing a newspaper article is similar to citing a journal article except, instead of the volume and issue number, the edition and date of publication are needed:

Author surname(s), initial(s). (Year) 'Article Title', *Newspaper Title* (edition), day month,

page number(s).

Note: edition is used only where applicable.

Newspaper Article Example:

How to Cite an Online Journal or Newspaper Article in Harvard Format

To cite an online journal or newspaper article, the page numbers section from the print journal or newspaper reference is swapped with the URL or DOI the article can be accessed from and when it was accessed. So the reference for an online journal article is:

Author surname(s), initial(s). (Year) 'Title of article', *Title of journal*, volume(issue/season) [online]. Available at: URL or DOI (Accessed: day month year)

And the reference for an online newspaper article is:

Author surname(s), initial(s). (Year) 'Article Title', *Newspaper Title* (edition), day month [online]. Available at: URL or DOI (Accessed: day month year)

How to Cite Non-Print Material in Harvard Format

How to Cite an Online Photograph in Harvard Format

The basic format is as follows:

Photograph surname, initial. (Year of publication) *Title of photograph* [online]. Available at: URL (Accessed: day month year)

Online Photograph Example:

Millais, J.E. (1851-1852) *Ophelia* [online]. Available at: www.tate.org.uk/art/artworks/millais-ophelia-n01506 (Accessed: 21 June 2014)

How to Cite a Film in Harvard Format

The basic format to cite a film is:

Title of film (Year of distribution) Directed by **director's name** [format]. Place of distribution: Distribution Company.

Film Example:

Rear Window (1954) Directed by Alfred Hitchcock [Film]. Los Angeles: Paramount Pictures.

How to Cite a TV Programme in Harvard Format

The basic format for citing a TV programme is as follows:

Title of episode in in quotations marks and the title of the show is in italics. Both should only have the first letter of the first word and proper nouns capitalised. Note 'Series' is capitalised by episode is not.

'*Title of episode*' (Year of transmission) *Title of TV show*, Series #, episode #. Name of channel or streaming service, day month of transmission.

TV Programme Example:

'Fly' (2010) *Breaking Bad*, Series 2, episode 10. AMC, 23 May 2010.

How to Cite Music in Harvard Format

The basic format to cite an album is as follows:

If the artist's name is in forname surname form the cite them the usual way: surname followed by initials. If the artist goes by a stage name that is not forname surname, just state the full name. Formart refers to the format of the music, this could be CD or visual album for example.

Artist name (Year of publication) *Title of album* [format] Place of distribution: distribution company. Available at: URL (Accessed: day month year)

This should only be used if the music was accessed online.

Music Example:

How to Cite a Website in Harvard Format

The basic format to cite a website is:

Author surname(s), initial(s). (Year of publishing) *Title of page/site* [Online]. Available at: URL (Accessed: day month year)

Website Example:

Mitchell, J.A. (2017) *How and when to reference* [Online]. Available at: <https://www.howandwhentoreference.com/> (Accessed: 27 May 2017)

To learn more about citing a web page and entire websites in APA, MLA or Harvard check out [How to Cite a Website](#) post.

For a summary of all the references for each source type along with examples take a look at our [Ultimate Citation Cheat Sheet](#). It also contains examples for [MLA 8](#) and [APA](#) formats.