Propcom Mai-karfi

Programme Closeout Report

2012-2021

UKaid from the British people

Propcom Mai-karfi

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Acronyms/Abbreviations

AAH	Action Against Hunger
ACGS	Agricultural Credit Guarantee Schemes
AFEX	Associated Foreign Exchange
BAY	Borno, Adamawa and Yobe States
BoP	Bottom of Pyramid
CAHW	Community Animal Health Worker
CBN	Central Bank of Nigeria
CBO	Community Based Organisation
CPP	Crop Protection Products
DAP	Demand Aggregation Platform
DEC	Development Exchange Centre
DFID	Department for International Development
EWRS	Electronic Warehouse Receipting System
FAO	Food and Agricultural Organisation
FCDO	Foreign, Commonwealth & Development Office
FCMB	First City Monument Bank
FCT	Federal Capital Territory
FCTA	Federal Capital Territory Administration
FMARD	Federal Ministry of Agriculture & Rural Development
FSAPC	Food Security and Agricultural Product Company
GAP	Good Agricultural Practices
GBT	Gombe, Bauchi and Taraba States
GEMs	Growth Employment and Markets Programme
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoN	Government of Nigeria
ICRC	International Committee of the Red Cross
INGO	International Non-Governmental Organisation
LAPO	Lift Above Poverty Organisation
LGA	Local Government Area
LGC	Local Government Council
MFB	Microfinance Bank
MoU	Memorandum of Understanding
MRM	Monitoring and Results Measurement
NAGAPPEN	National Association of Gum Arabic Producers Processors and Exporters of Nigeria
NAMEL	Nigeria Agricultural Mechanisation and Equipment Leasing Company
NBS	National Bureau of Statistics
NCAM	National Centre for Agricultural Mechanisation
NECAS	Northeast Commodity Association
NESG	Nigeria Economic Summit Group NIRSAL

NIRSAL	Nigerian Incentive-Based Risk-Sharing System for Agricultural Lending
NEXIM	Nigerian Export-Import Bank
PCR	Programme Closeout Report
PDT	Programme Direction Team
PWD	People Living with Disability
PM	Propcom Mai-karfi
PRFIL	Pye Ryat Foods International Ltd
PSC	Project Steering Committee
QBWA	Quintessential Business Women's Association
ROPO	Raise Out of Poverty (Bond)
SHF	Smallholder Farmers
SWOFON	Small-scale Women Farmers Organisation in Nigeria
ToC	Table of Contents
TOHFAN	Tractor Owners and Hiring Facilities Association of Nigeria.
ToR	Terms of Reference
TSPs	Tractor Service Providers
UNDP	United Nations Development Programme
VCN	Veterinary Council of Nigeria
WACOT	West African Cotton Company (Limited)

Executive Summary

Introduction and Context

Propcom Mai-karfi (PM) was a nine-year, rural and agricultural market development programme funded by the UK Government. The £27 million first phase of PM (2012-2017) targeted the 19 states in Northern Nigeria. A £24 million extension was approved for an additional 31 months to March 2021, bringing the total value to £51 million. In April 2020, a final 9-month time extension was approved, taking the Programme to December 2021. PM sought to stimulate sustainable pro-poor growth in selected rural markets using a 'Making Markets Work for the Poor' (M4P) approach. The Programme worked as a 'market facilitator', identifying constraints in market systems and facilitating changes to enable rural markets to work better for the benefit of poor smallholder farmers and rural small-scale entrepreneurs.

The Federal Republic of Nigeria has an estimated population of 193 million people, is Africa's most populous country and accounts for about 20% of the total population of sub-Saharan Africa (SSA). 77% of the 100 million poor people in Nigeria, live in the north where more people live in extreme poverty, with women and girls being particularly disadvantaged.

The Propcom Mai-karfi Programme

The Programme rationale rested on four key considerations. These were: (a) the extent of poverty in Nigeria (particularly in the North), combined with high levels of gender inequality; (b) the iniquitous nature of growth in Nigeria, which has failed to reduce poverty; (c) the programme's close fit with the vision, objectives and strategy of DFID in Nigeria, which also reflect the priorities of the Government of Nigeria, and (d) the proven feasibility of stimulating sustained increases in incomes for the rural poor by following a market systems or 'making markets work for the poor' (M4P) approach, as demonstrated by the success of the earlier Promoting Pro-poor Opportunities in Commodity and Service Markets (Propcom) Project.

The Legacy Phase (2012-2017) took on a new set of challenges in the thinner markets stretching across northern Nigeria. Its vision was captured in the second part of the programme name, Mai-karfi, which means "stronger" in the northern Hausa language. The stated aim of the Legacy Phase was to increase the incomes of 650,000 poor men and women in northern Nigeria. This would be achieved by (i) stimulating sustainable, pro-poor growth in selected rural markets; and by (ii) improving the position of poor men and women within these market systems, to make them more inclusive for poor people.

PM's Extension Phase (2018-1021) sought to build upon the progress made under the Legacy Phase, whilst also responding to the UK's dominant areas of policy interest. The Business Case for the Extension Phase identified four objectives: (i) Expand the programme in conflict-affected states in the North East of Nigeria to work towards sustained stability and economic recovery; (ii) increase resilience of the rural poor to climate change by growing a portfolio of climate-smart interventions; (iii) continue to facilitate inclusive growth in rural and agricultural markets; and (iv) keep embedding best practices in women's economic empowerment (WEE) across interventions.

Approach

Facilitation – a bespoke market systems approach

The PM Legacy Phase advocated a traditional market systems development approach targeted at the rural poor, commonly called the "Making Markets Work for the Poor" or M4P approach. By means of the M4P approach, PM intended to demonstrate that it is possible to alleviate poverty when interventions are designed around economic activities in which the poor are most engaged. For the Extension Phase, the approach was adapted to accommodate market engagements in conflict zones and beneficiaries to re-engage in sustainable livelihoods and markets.

Innovation – a green shoots approach

Throughout its life, PM has promoted an imaginative, opportunistic approach that has seen successes and failures. This flexible approach has required the recruitment of managers with an entrepreneurial skill set, a leadership that encourages risk-taking and a client that readily accepts that success will be balanced with the occasional failure. Whilst this approach has been followed since inception, it achieved formal recognition in the introduction and acceptance by DFID/FCDO of a "green shoots" workstream early in the Extension Phase.

Adaptation - an approach to learning

The continued prosperity of the Programme is in no small part due to the Programme's ability to adapt to the changing environment and to the challenges it faced. PM had to adapt year by year, sometimes month by month, to meet an ever-changing context. At intervention level, PM continually challenged the assumptions upon which activities had been designed and learnt from the experiences. Severe disruptions in the operating environment, including deteriorating security, economic crises and the COVID-19 pandemic were more recent challenges that required adaptation and involved an ongoing prioritisation of states as well as interventions.

Cross-cutting and mainstreaming

The attention paid to cross-cutting issues by the Programme increased over time. DFID had promoted a strong focus on Womens' Economic Empowerment from the beginning of PM. The Programme was slow to react during the Legacy Phase, but increased attention paid during the later stages of the Legacy Phase brought dividends during the Extension Phase (see also Section 7). The emphasis on Climate Smart Agriculture emerged during the latter part of the Legacy Phase and became a key component of the Extension Phase Business Case and implementation. Access to Finance was a critical theme that ran through both phases.

Interventions

In line with the market systems development approach identified in Section 4.1 above, interventions were identified that responded to key constraints in selected markets. In addition, PM established key minimum conditions that must be met for an intervention to be piloted in the first place as a precursor to upscaling and or roll out. As the programme evolved, these minimum conditions were considered in light of changing priorities, most notably associated with impact upon women, upon PWDs and upon IDPs and host communities.

In the Legacy Phase, PM focused on 4 major markets: Agricultural Inputs; Agricultural Mechanisation; Poultry and Livestock; and Offtake/Storage. During the Extension Phase, the number of interventions expanded and for operational convenience were clustered into three groups: Livestock, Crops and the Environment. For the purposes of this report, interventions are organised into four sub-sections: major technical interventions; climate smart interventions; WEE interventions and Access to Finance. For each intervention, rationale, action and highlights are identified.

Major Technical Interventions covered are Agricultural Inputs, Agricultural Mechanisation, Poultry (Animal) Health, Community Animal Health Workers Programme, Poultry Production and Marketing, Milk Processing and Aggregation, Electronic Warehouse Receipting System, Aggregation and offtake, and Extension Services. Climate Smart Initiatives covered include Improved cook stoves and fuel briquettes from crop waste, Weather data derived products, Solar drying services, Plastic Recycling, Solar Irrigation, Compost as an alternative to inorganic fertiliser, and Agroforestry. Women's Economic Empowerment Interventions include Rice Parboiling (Rice Processing), Acha Processing, Sesame Seed Contract Farming, and Shea processing and marketing.

Results

Given the approach adopted, the markets identified, and the interventions pursued, results are presented against Logframe targets for both the Legacy Phase and the Extension Phase. PM managed to achieve all the targets for the Legacy Phase, except those for female access and beneficiaries. Traditional gender roles obtaining in northern Nigeria made access challenging and the programme was slow to adapt its programming to reflect this. During the Legacy Phase, Access results were dominated by the Agricultural Inputs intervention. At the beginning, the results were heavily skewed towards the fertiliser interventions which, at one point, accounted for over 90% of the results. While this distribution improved over time, Agricultural Inputs still accounted for over half of the results by the end of the Programme.

For the Extension Phase, PM's Logframe underwent three changes, and all targets were achieved. A breakdown of the Access numbers by Market shows that nearly half of the results (48%) came from the Poultry & Livestock interventions, followed by Agricultural Inputs at 20% and Agricultural Mechanisation at 16%. These three markets accounted for 84% of the total results, showing that the interventions that were initiated during the Legacy Phase were taken to scale during the Extension Phase. Women accounted for nearly half of the Access results overall (46%) and over 50% in the Northeast. This is in contrast to the Legacy Phase. Much of this success can be attributed to the mainstreaming of WEE across the programme's portfolio of interventions as well as the implementation of specific gender-targeted interventions, focusing on areas and sectors where women's involvement/contribution is high.

It was possible to present data for certain indicators that remained roughly the same throughout the programme. These results indicate that the Programme has performed well against the combined indicators over the life of the Programme. Programme staff were very conscious of the targets set by

DFID/FCDO and managed their interventions accordingly. Sufficient Programme funds were allocated to the measurement of results so that data was not just gathered, it was systematically aggregated and analysed. This allowed for real-time adjustments to interventions in response to performance and with respect to the targets and ambitions of the client.

Value for Money

The table below presents data for value for money metrics for both the Legacy Phase and the Extension Phase. The Extension Phase has performed considerably better than the Legacy Phase on almost every single metric. This can partly be attributed to the fact that the Extension Phase has built upon the successes of the Legacy Phase and had already gained valuable traction and leverage in some key markets/interventions when it started. Only the investment leverage ratio has remained the same between the two phases.

Indicator	Legacy	Extension	Overall
Total operational costs /total costs	32.6%	29.8% ▼	31.3%
Cost per farmer reached	£21.80	£19.70 ▼	£20.80
% of farmers reached who are female	20.7%	46.4% ▲	32.7%
Cost per farmer benefitted	£33.80	£24.40 ▼	£28.80
% of farmers benefitted who are female	21.9%	48.8% ▲	36.0%
Beneficiary income gain per £ spent	£1.20	£4.77 ▲	£2.79
Private sector investment leveraged per £ spent	£2.19	£2.18 ▬	£2.18

Lessons Learned

In its nearly 10 years of implementation, Propcom Mai-karfi has generated a range of insights and useful lessons that other M4P programmes, in Nigeria and similar contexts elsewhere, can both learn and benefit from. Lessons described cover the use of a market Systems approach in thin and conflict affected markets; approaches by which sustainability and legacy can be achieved; the impact on performance of changing geographical and target beneficiary groups; the delivery of climate Smart Approaches; the impact of changing external factors (including the national economy and COVID-19); incorporating a Gender Empowerment approach; the use of digital platforms and mass audience broadcasting; and the importance of aligning programme data collection requirements with partner's ability to deliver.

1 Introduction

Propcom Mai-karfi (PM) was a nine-year, rural and agricultural market development programme. The £27 million first phase of PM (2012-2017) targeted the 19 states in Northern Nigeria. A £24 million extension was approved for an additional 31 months to March 2021, bringing the total value to £51 million. In April 2020, a final 9-month time extension was approved, taking the Programme to December 2021. The Extension Phase targeted Kaduna, Kano and Jigawa states (KKJ) in northern Nigeria and Gombe, Bauchi and Taraba states (GBT), and Borno, Adamawa and Yobe (BAY) states in north-east Nigeria. The Programme was initially funded by the UK Government's Department for International Development (DFID) and subsequently, following the merger of DFID with the Foreign and Commonwealth Office, by the Foreign, Commonwealth & Development Office (FCDO).

PM sought to stimulate sustainable pro-poor growth in selected rural markets using a 'Making Markets Work for the Poor' (M4P) approach. The Programme worked as a 'market facilitator', identifying constraints in market systems and facilitating changes to enable rural markets to work better for the benefit of poor smallholder farmers and rural small-scale entrepreneurs.

This close-out report is prepared in accordance with contractual obligations and seeks to provide a historical record of the whole project term. Throughout the document, the whole programme is referred to as Propcom Mai-karfi (PM) or the Programme, the first phase of PM is referred to as the Legacy Phase and the extension of the Programme is referred to as the Extension Phase. The predecessor to Propcom Mai-karfi is referred to as Propcom 1.

Following this introduction, Section 2 provides the national context within which the Programme operated; Section 3 describes the concept, design and scope of work of the two phases; and Section 4 outlines the overall approach to implementation; Section 5 provides details of the rationale, the activities and the highlights of the interventions identified for implementation; and Section 6 describes the results achieved with respect to the targets and Logframe. Section 7 lists the human and financial resources available for the Programme and Section 8 summarises a range of lessons learned.

2 Context

The Federal Republic of Nigeria, a country bordering the Gulf of Guinea, occupies a land area of 923,768 square kilometres. With an estimated population of 193 million[1] people, Nigeria is Africa's most populous country and accounts for about 20% of the total population of sub-Saharan Africa (SSA)[2]. It is the continent's largest economy and is a land of considerable opportunity endowed with natural resources, including oil and gas, solid minerals such as gold, iron, tin, bauxite and limestone. Administratively, the country is a federation of 36 states, a Federal Capital Territory (FCT) as shown in Figure 1. The States are further subdivided into 774 Local Governments Areas (LGAs). Political governance therefore consists of a Federal or National Government; Federal Capital Territory Administration (FCTA), 36 State or Sub-national Governments and 774 Local Government and Area Councils.

Figure 1: Map Showing the Federal Republic of Nigeria

[1] National Bureau of Statistics, Annual Abstract of Statistics, 2019 Edition

[2] National Bureau of Statistics, Annual Abstract of Statistics, 2019 Edition

At the start of the Programme, Nigeria was already suffering from protracted conflict, arising out of the Boko Haram insurgency in particular and banditry in the Northeast (NE) which had snowballed to the Northwest. In addition, kidnappings had become widespread, particularly in the Northwest, but also in the south of the country. The rise in insurgency, banditry and kidnappings all combined to threaten the livelihoods of the rural poor in PM's target states, adding to the existing challenges of land degradation and unpredictable climate events increasingly seen as a consequence of the global climate change crisis.

Millions of people had been internally displaced as a result of the insurgency in the NE Region as part of the Lake Chad basin causing food insecurity, disrupted livelihoods, soaring prices of staple foodstuffs, and leading to partial or complete dependency on humanitarian support for large number of the population. Setting aside the particular challenges seen for communities in the NE conflict areas, at the start of PM in 2012 poverty across the rest of Northern Nigeria was widespread. Benchmarked against most poverty indices, northern Nigeria suffered more than the rest of the country, as clearly demonstrated by: (i) 77% of people living on less than $1.25 per day, compared to 64% nationally; (ii) 50% of children under five were stunted[3], compared to 38.5% nationally[4]. (iii) 80% of women in the north-west and north-east zones could not read and write, compared with 52% nationally[5]. Simply stated, 77% of the 100 million poor people in Nigeria, lived in the north where more people lived in extreme poverty, with women and girls being particularly disadvantaged. Clearly, there was a need not only to revitalise rural agriculture, the principal source of income for the rural poor, but also to change the narrative in communities impacted by conflict from dependency on humanitarian assistance to the re-establishment of sustainable farming activities.

It was against this background that Propcom Mai-karfi began its activities in 2012.

[3] Calculated as a weighted average of the prevalence in the Northeast and Northwest zones using Nigeria DHS 2008 and Census 2006 data.

[4] UNICEF 2012, citing DHS Survey.

[5] Nmadu, Avidme, Oguntunde, Dashe, Abdulkarim, Mandara, Girl Child Education: Rising to the challenge. *African Journal of Reproductive Health*, September 2010 (Special issue); 14 (3): 107

3 The Propcom Mai-karfi Programme

3.1 Concept and design

PM is a successor to the UK Government's Department for International Development-financed Promoting Pro-poor Opportunities in Commodity and Service Markets (Propcom) Project, which was implemented from 2002-2011[6]. PM sought to address widespread poverty in Northern Nigeria, through a market systems approach to sustainably improving the livelihoods of the rural poor.

The Programme rationale rested on four key considerations. These were: (a) the extent of poverty in Nigeria (particularly in the North), combined with high levels of gender inequality; (b) the iniquitous nature of growth in Nigeria, which has failed to reduce poverty; (c) the programme's close fit with the vision, objectives and strategy of DFID in Nigeria, which also reflect the priorities of the Government of Nigeria, and (d) the proven feasibility of stimulating sustained increases in incomes for the rural poor by following a market systems or 'making markets work for the poor' (M4P) approach, as demonstrated by the success of the earlier Propcom 1[7] programme.

PM's vision was to make a significant contribution towards developing thriving rural markets in Northern Nigeria, which create shared prosperity and economic opportunities for women and men. The mission was to facilitate inclusive and sustainable poverty reduction in Northern Nigeria through:

- Partnerships with businesses and other development actors;
- Strategic investments in innovative business models;
- Informing and influencing policy; and
- Sharing information and knowledge with others.

3.2 Geographical focus

Given the poverty-reduction ambitions of the Programme design, PM focused on northern Nigeria and identified a focus on agriculture and rural enterprise as being fundamental to reducing poverty in the region. 77% of people living in the north of Nigeria depend upon agriculture for their income. Characteristically, the states have predominantly rural economies with large populations who are largely geographically remote from the commercial centres of Kano, Abuja and Lagos. According to the NBS, some northern states – including Sokoto, Bauchi, Zamfara, Adamawa, Kebbi, and Katsina, have poverty incidences well above the northern average[8].

[6] DFID Nigeria, Propcom Mai-karfi Business Case, November 2012

[7] PrOpCom Project Completion Review, December 2011.

[8] Noting that the National Bureau of Statistics (NBS) caps 'the poor' at $1.25/capita/day. However, the picture remains unchanged if the definition of 'the poor' is extended to $ 2/capita/day.

Northern Nigeria borders the Sahel, an area which represents the transition from the Sahara Desert to Savannah, and as such has a fragile semi-arid ecosystem that is particularly vulnerable to the effects of climate change, in the form of unpredictable rainfall and more extreme climate events such as flooding or drought with an encroaching desert. This vulnerability further exacerbates the likelihood of the region sinking deeper into extreme poverty, in the absence of a robust response to mitigate the impact of such climate change.

For the purposes of the Legacy Phase, the project targeted the eighteen northern-most states of Nigeria as well as the Federal Capital Territory (FCT) of Abuja but excluding Kogi State. This is illustrated in Figure 2 below. In terms of vulnerability to climate change, ten of the nineteen states are rated Very High; 5 are rated High; 2 are rated Medium; and 2 are rated Low, emphasizing the importance of climate smart agriculture as a fortification against threatened livelihoods in northern Nigeria.

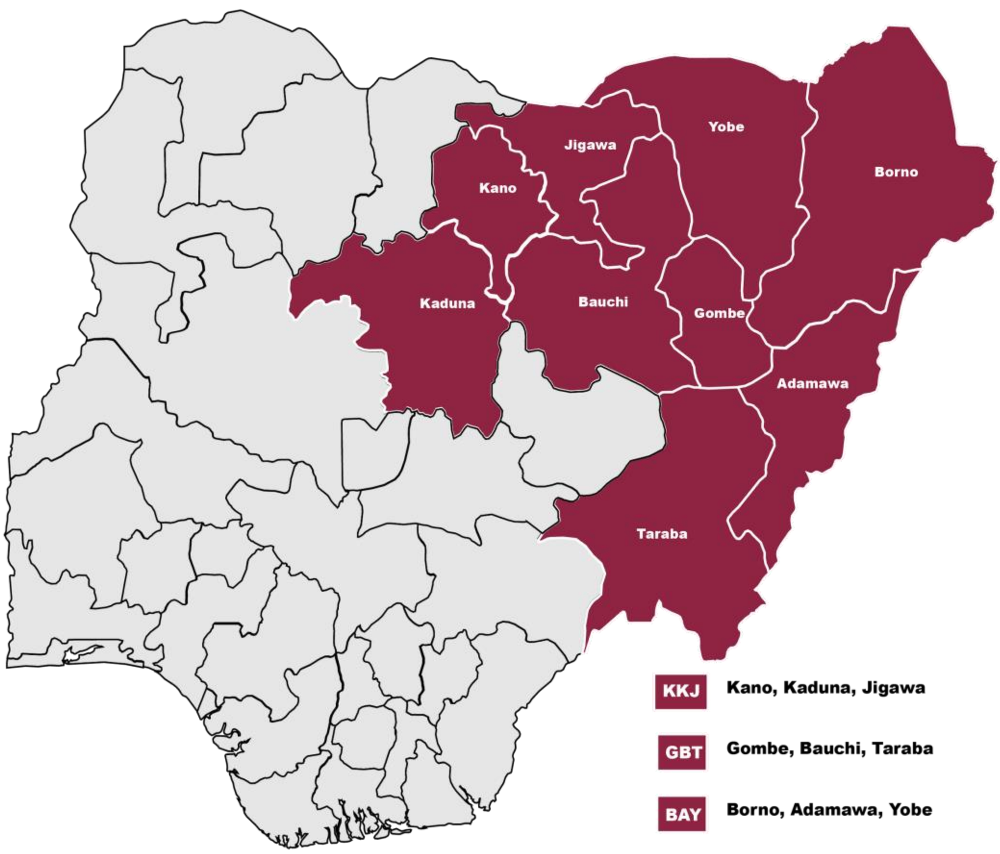
Figure 2: Map showing PM Legacy Phase target states

18 Northern States and the FCT, Propcom Mai-karfi is working
Other non-northern States where Propcom Mai-Karfi is not working

For the Extension Phase, and recognizing FCDO development priorities, the footprint of PM was reduced from the original nineteen states to nine, comprising the six, conflict-affected NE states of Borno, Adamawa, Yobe, Gombe, Bauchi and Taraba as well as the three "Partner states" of Kano, Kaduna and Jigawa. These were then subdivided into three groups, based on the perceived impact of the insurgency, as follows:

- Borno, Adamawa, and Yobe - known as the BAY states were considered most impacted by the effects of the insurgency in the NE.
- Gombe, Bauchi and Taraba - known as the GBT states, impacted by being on the margins of the conflict.
- Kano, Kaduna, and Jigawa - known as the KKJ states, being in the North Central area and considered least impacted. These states were included for the Extension Phase as they were classified as Partner States by DFID and considered of key strategic importance to the donor.

Figure 3: Map showing PM Extension Phase target states.



3.3 Propcom Mai-karfi Legacy Phase (2012–2017)

The Legacy Phase was a £27 million rural and agricultural market development programme that worked across all 19 states of northern Nigeria. It was funded by the United Kingdom's Department for International Development (DFID) and was a flagship of the Making Markets Work for the Poor (M4P) approach in Nigeria (see Section 4.1). M4P seeks to achieve a thorough understanding of market systems, those who participate in them and the constraints they face – and then to change those systems for the better.

The Legacy Phase followed in the footsteps of the 2005–2011 programme Promoting Pro-Poor Opportunities in Commodity and Service Markets (PrOpCom 1). PrOpCom 1 piloted the M4P approach in the relatively busy markets of Kano State and South West Nigeria. PM Legacy Phase took on a new set of challenges in the thinner markets stretching across northern Nigeria. Its vision was captured in the second part of the programme name, Mai-karfi, which means “stronger” in the northern Hausa language.

The stated aim of the Legacy Phase was to increase the incomes of 650,000 poor men and women in northern Nigeria. This would be achieved by (i) stimulating sustainable, pro-poor growth in selected rural markets; and by (ii) improving the position of poor men and women within these market systems, to make them more inclusive for poor people. It was required that of the total of 650,000 individuals impacted, 250,000 should be women. Whilst the Business Case did not identify specific objectives, the outputs were identified as:

- Selected rural market systems work more effectively for poor farmers and small-scale rural entrepreneurs.
- Poor women and men engaged in selected rural markets are less vulnerable to shocks, trends and seasonality.
- Private investors, government, non-government organisations and development agencies make changes in their approach to northern Nigeria as a result of programme influence.

3.4 Propcom Mai-karfi Extension Phase (2018–2021)

PM’s Extension Phase sought to build upon the progress made under the Legacy Phase, whilst also responding to the UK’s dominant areas of policy interest. The Business Case for the Extension Phase identified four objectives:

- Expand the programme in conflict-affected states in the North East of Nigeria to work towards sustained stability and economic recovery.
- Increase resilience of the rural poor to climate change by growing a portfolio of climate-smart interventions.
- Continue to facilitate inclusive growth in rural and agricultural markets.
- Keep embedding best practices in women’s economic empowerment (WEE) across interventions.

…and three outputs:

- Selected rural market systems work more effectively for poor farmers and small-scale rural entrepreneurs.
- Adoption of CSA practices within selected agricultural markets.
- Private investors, government, non-government organisations and development agencies make changes in their approach to northern Nigeria as a result of programme influence.

The first of the objectives represented a significant tightening of focus from all 19 northern states to just 9. Of these, Adamawa, Borno and Yobe are states of protracted crisis. In these states lying nearest to Lake Chad, ongoing attacks by Boko Haram and other insurgent groups had led to severe market failures, acute food insecurity and population displacement. PM, in its most challenging work yet, sought to guide key actors from external relief dependence towards market recovery.

The other six states offered a wide range of market conditions. Bauchi, Gombe and Taraba formed a second tier of conflict-affected states, where some communities and markets were strongly shaped by the settling of internally displaced people (IDPs). Tailoring interventions to these states required an understanding of both the IDP and their host communities. PM also remained involved with Kaduna, Kano and Jigawa. These three states, forming the economic hub of the north, were long-time partners in UK development and governance programmes and had the strongest market foundations laid by the PM Legacy Phase.

3.5 Logframe

The evolution of PM and of DFID/FCDO priorities were reflected in changes in the Programme Logframe. Section 6 discusses results with respect to Logframe targets. Table 2 and Table 7 present results for Logframe indicators for the Legacy Phase and extension Phase respectively. It should be noted that these Logframes represent the end of phase logframes and that specific indicators and targets were adjusted during the life of the Programme.

In particular, as the Programme moved from Legacy Phase to Extension Phase, the Logframe was adjusted as follows:

- To reflect the importance of resilience, Resilience was decoupled from Income and 2 separate indicators were created: Outcome 1 for measuring number of people with increased income and Output 2.5 to measure number of people with increased resilience to climate change.
- To reflect the importance of climate smart interventions, a group of CSA indicators were added to Output 2
- To reflect the importance of the focus on the North East of Nigeria, certain indicators were disaggregated to specify results by region.
- To reflect the importance of 'green shoots' interventions, a specific indicator was included.

4 Approach

4.1 Facilitation – a bespoke market systems approach

The PM Legacy Phase advocated a traditional market systems development approach targeted at the rural poor, commonly called the "Making Markets Work for the Poor" or M4P approach. By means of the M4P approach, PM intended to demonstrate that it is possible to alleviate poverty when interventions are designed around economic activities in which the poor are most engaged, which will increase their productivity and increase income, thus improving their resilience to shocks and seasonality.

The M4P approach identifies systemic constraints in the market that have continuously impeded the participation of the poor in an economically beneficial way. M4P then endeavours to facilitate changes in the structure and functioning of the market system that creates sustainable "win-win" situations in a way that empowers the poor to increasingly participate in and benefit from the market.

The identification of systemic constraints and introduction of systemic changes is an outcome of a thorough analysis of the market to create sustainable benefits for the poor. Against the background of multiple actors and frequently multiple functions in the market system, the Programme engaged with a broad range of actors including the government, quasi-governmental institutions, private sector organisations, non-governmental organisations (NGOs), International non-governmental organisations (iNGOs), and individuals to facilitate the process of change.

As a private sector led change paradigm, the key word is "facilitation" as direct support is usually not sustainable. PM focused on facilitating the private sector and other market actors to catalyse the desired market growth. Facilitation tools employed included linking market actors into mutual benefit relationships; de-risking the adoption of a supply network or technology; provision of technical support through capacity building of value chain actors; advisory services; and advocacy and lobbying such as introduction of favourable policy changes in the market.

For the Extension Phase, the approach was adapted to accommodate market engagements in conflict zones and beneficiaries to re-engage in sustainable livelihoods and markets. To work across these very different and very challenging states, PM needed to refine its market systems approach based on the best outcomes of the Legacy Phase. Its approach had to adapt to three distinct and shifting market contexts, with a common focus on developing agricultural market systems to benefit the rural poor.

4.2 Innovation – a green shoots approach

The market systems development approach provides a structure within which interventions can be pursued. It permits a degree of flexibility in how to pursue interventions and who to pursue interventions with. Throughout its life, PM has promoted an imaginative, opportunistic approach that has seen successes and failures. This flexible approach has required the recruitment of managers with an entrepreneurial skill set, a leadership that encourages risk-taking and a client that readily accepts that success will be balanced with the occasional failure.

Whilst this approach has been followed since inception, it achieved formal recognition in the introduction and acceptance by DFID/FCDO of a “green shoots” workstream early in the Extension Phase. A 'green shoot' is a high-risk intervention that has the potential to generate or contribute to transformational change beyond the end of the programme lifecycle. These were new ideas that PM would test out with market actors, with the understanding that their success was far from certain, but that they had the potential for serious impact if taken up by the market.

The green shoots were indicative of PM’s continuing commitment to doing things differently in its Extension Phase. The programme could have stuck to the most successful interventions from PM Legacy and easily continued to hit targets as these scaled up. However, its ambition was not just to build markets but to demonstrate how much was possible, even in thin and conflict-affected markets, by bringing the right actors – with the right inputs, technologies and market connections – together with smallholder farmers eager to rebuild their livelihoods.

The importance of the green shoot initiative was reflected by its inclusion as an output within the Logframe. Four notable interventions classed as green shoot initiatives were the work with National Veterinary Research Institute (NVRI) (see section 5.2.3). the work with the dairy processor, ARLA (see Section 5.2.6), solar irrigation (see Section 5.3.5) and agroforestry (see Section 5.3.7).

4.3 Adaptation - an approach to learning

Whilst PM programme implementation was built on the successful components of its predecessor, Propcom 1, and the successes of the Extension Phase owe much to the progress made in the Legacy Phase, the continued prosperity of the Programme is in no small part due to the Programme’s ability to adapt to the changing environment and to the challenges it faced. PM had to adapt year by year, sometimes month by month, to meet an ever-changing context.

At intervention level, PM continually challenged the assumptions upon which activities had been designed and learnt from the experiences. A rice production intervention had been built on too many assumptions about the strength and motives of relationships between the commercial partner, equipment suppliers and government institutions; from this, PM learned to pursue a deeper understanding of such relationships and the risks they represent to crucial loan and equipment supply processes. A bid to provide groups of female farmers with mechanized tillers ran up against the challenges of creating a novel value chain from scratch with imported equipment; from this, PM learned that it is easier to adapt opportunities existing within the country rather than introduce a solution that is new to all partners.

Severe disruptions in the operating environment, including deteriorating security, economic crises and the COVID-19 pandemic were more recent challenges that required adaptation and involved an ongoing prioritisation of states as well as interventions. The programme accelerated its re-alignment towards the protracted crisis states of the North East, seeking the impact that was FCDO’s top priority; however, PM decided not to abandon its now well-established partners in Kano and Jigawa, but encouraged the private sector in these commercial hubs to seek out business opportunities in the North East. The pandemic also placed additional strain on the classic M4P approach in PM's work in the North East, with the need for direct support to rescue floundering partnerships and address the effects of COVID-19 on the livelihoods of the rural poor and agricultural supply systems.

4.4 Cross-cutting and mainstreaming

The attention paid to cross-cutting issues by the Programme increased over time. DFID had promoted a strong focus on Womens' Economic Empowerment from the beginning of PM. The Programme was slow to react during the Legacy Phase, but increased attention paid during the later stages of the Legacy Phase brought dividends during the Extension Phase (see also Section 7). The emphasis on Climate Smart Agriculture emerged during the latter part of the Legacy Phase and became a key component of the Extension Phase Business Case and implementation. Access to Finance was a critical theme that ran through both phases.

4.4.1 Climate Smart Agriculture

FAO states that CSA "aims to enhance the capacity of the agricultural systems to support food security, incorporating the need for adaptation and the potential for mitigation into sustainable agriculture development strategies". CSA is anchored on three pillars: (i) sustainably increasing agricultural productivity and incomes; (ii) adapting and building resilience to climate change; and (iii) reducing and/or removing greenhouse gases emissions, where possible. Farmers vulnerability to the effect of climate change was underpinned by their limited knowledge on climate smart technology and practices as well as limited access to relevant clean energy products and services. A strong direction from DFID/FCDO in 2016 was that PM should embrace climate smart agricultural practice at the core of its intervention activity. In reality, good agricultural practice should, by definition, be climate smart as it should lead to increased productivity and hence greater resilience to the various shocks of climate change, and hence most interventions were already deemed to have some climate smart component.

However, in an additional response to the remit to seek climate change mitigation and adaptation in PM's engagements with the rural poor, in the Extension Phase several specific pilot interventions were undertaken to prove or otherwise the concepts around using novel technologies and practices to combat the impact of climate change. In some cases, such as the use of improved cookstoves, the goal was to encourage adaptation of practices to utilise resources more efficiently, whilst in other initiatives, for example the trialling of solar irrigation pumps, technology was tested that could substitute the use of fossil fuels, thus mitigating the impact of greenhouse gas production by conventional diesel pumps.
Therefore, as with the crosscutting agenda of WEE, the programme's response evolved to deliver a mix of specific climate smart interventions, alongside the incorporation of a clear climate smart narrative in mainstream interventions.

Whilst the Programme did indeed integrate climate smart ideology into its existing portfolio of interventions, it was probably more successful at piloting and scaling a range of climate-specific interventions (see Section 6.3) that were innovative for the NE of the country.

4.4.2 Women's Economic Empowerment (WEE)

At the beginning of the Programme, Womens' Economic Empowerment was treated as a stand-alone initiative through which the programme aimed to reach specific output targets. This was supported by one of the original implementation partners, WISE (Women in Sustainable Economic Development). Though a strong WEE agenda was part of intervention design from early in the Legacy Phase, incorporating gender targets into private sector led initiatives proved, in most cases, problematic, as incorporating specific sectors of a community for facilitation needs to make financial sense for the partners, beyond it being deemed socially desirable by the donor. To better understand livelihood opportunities for women, PM undertook a major study at the end of 2017 on the contextual issues affecting women in the NE. In response, PM identified value chains where WEE could be further sustainably incorporated in intervention design and implementation, and revisited existing interventions, such as Agricultural Mechanisation and Access to Finance where a more nuanced approach could be adopted in order to reach women beneficiaries. In addition, a range of specific interventions were piloted that targeted womens' empowerment (see Section 6.4) and PM collaborated with INGOs/NGOs to implement women-targeted interventions, including Action Against Hunger (AAH), the Danish Refugee Council (DRC) and the Development Exchange Centre (DEC). Therefore, PM's response to reaching women in the very traditional environment of Northern Nigeria was built around both specific gender-focused interventions and ensuring that learnings from programme initiatives were used to effectively include women in the major intervention areas that were showing traction.

PM also strengthened efforts to mainstream social inclusiveness in accord with the third objective of the Extension Phase that requires the programme to: "Continue to facilitate inclusive growth in rural and agricultural markets to address the growing levels of rural poverty and vulnerability." To this end, PM started tracking disability (initially using the "Washington Group Short Set of Questions") to understand the level of disability that existed, to ensure that both women and PWD have meaningful participation and access to sustainable economic empowerment.

4.4.3 Access to Finance (A2F)

Access to Finance represents the third crosscutting theme, where lack of liquidity in the agriculture sector is a major constraint at most levels of the value chains that PM worked in. However, the A2F portfolio differs from those of WEE and CSA in that its incorporation into each activity was on the basis of need, and not a requirement. For example, in poultry health there was no apparent need for linkages to sources of finance as the gains made for beneficiaries were through changes in management practice rather than additional investment. Requirements for finance differed along the value chains, varying from the provision by PM of returnable grants to stimulate seasonal activity by private sector partners, to the provision of affordable small-scale loans for farmers by microfinance institutions. A further key area of PM facilitation was the harnessing of loan guarantees offered by NIRSAL, a branch of the Central Bank of Nigeria, to reduce the risk to lenders for the purchase of agricultural machinery.

Therefore, the activity of the access to finance team was tailored to the specific needs of each intervention, whilst also developing models for financing that could be replicated by others in the agricultural space.

5 Interventions

5.1 Identification of interventions

In line with the market systems development approach identified in Section 4.1 above, interventions were identified that responded to key constraints in selected markets. In addition, PM established key minimum conditions that must be met for an intervention to be piloted in the first place as a precursor to upscaling and or roll out.

- The intervention must be one that will benefit a large population of the targeted beneficiaries.
- There must be growth opportunities in the market, for scalability
- There is or are willing (private sector) partner(s) that have been identified with a strong desire for change and will own the process.
- The Implementing Partner must have a clear understanding of the model and how it would contribute to the transformation of the market and their own business growth.
- The partner should be involved in developing the theory of change to guide the "way forward". This helps to incorporate the partner's field experience as well as ensures ownership of the change process.
- PM support to any partner(s) to facilitate the process must be time bound, provide tangible results and with clear exit strategies.
- There is a possibility of leveraging existing market structures to achieve success without significantly raising operational costs.
- It is sustainable – an unlikely outcome in a direct support approach that is typical of most programmes.
- It is environmental, economically, politically and culturally feasible.

As the programme evolved, these minimum conditions were considered in light of changing priorities, most notably associated with impact upon women, upon PWDs and upon IDPs and host communities.

5.2 Organisation of Interventions

In the Legacy Phase, PM focused on 4 major markets: Agricultural Inputs; Agricultural Mechanisation; Poultry and Livestock; and Offtake/Storage. During the Extension Phase, the number of interventions expanded and for operational convenience were clustered into three groups: Livestock, Crops and the Environment

For the purposes of this report, interventions are organised into four sub-sections: major technical interventions; climate smart interventions; WEE interventions and Access to Finance.

For each intervention a rationale is presented that describes the justification and context for the intervention; the action is presented which describes how PM approached the intervention and what was done; and the highlights are listed.

5.3 Major Interventions

5.3.1 Agricultural Inputs

5.3.1.1 Rationale

The agricultural inputs market, a continuing market of interest from Propcom 1, was challenged by several constraints. The potential market for agricultural inputs in northern Nigeria was estimated to be worth ₦300billion, with a large proportion of this being in rural areas. However, input suppliers were less inclined to take advantage of this unmet demand to invest in rural distribution channels. Smallholder farmers also lacked knowledge on proper application of inputs, good agronomic practice, and the correct use of crop protection products. A further barrier to private sector engagement in this market was the Growth Enhancement Support Scheme (GESS)[9], a government initiative to directly provide inputs to farmers, bypassing the usual commercial channels. In addition, lack of supply channels to rural areas, unaffordable product pack size at the point of retail sales to the public, lack of access to credit facilities, poor knowledge of good agronomy practices, inappropriate use of inputs and distortion of the market by various government subsidy programmes were all identified as barriers for private sector participation.

5.3.1.2 Action

In response, PM partnered with private sector input organisations to address these systemic constraints, underpinned by business models unique to each agricultural input and/or organisation. These include Notore and Golden – Fertiliser; Syngenta – Crop Protection Products (CPP); WACOT & Springsfield Agro – Seeds. In the final three years of the Programme, SME partnerships were extended to TecniSeed, Premier Seeds and GIRMAL for seeds, and EarthCare for compost fertiliser. The aim was to expand and improve their rural distribution channels alongside the training of farmers on good agronomic practices, in order to best utilise these inputs. During the Extension Phase, PM consolidated the work on agricultural inputs with a focus on the nine extension states and on the three core subsectors – certified seeds; fertiliser; and crop protection products - leading to improved productivity, increased income and resilience.

In addition to these specific areas of activity, in the Extension Phase PM also sought to work in the area of agricultural inputs, tied with access to information on good agronomic practice, in marginalised communities on the edge of the conflict area of NE Nigeria. This was originally planned as an initiative working alongside humanitarian organisations, such as ICRC, who were already engaged with providing acute resource but stated that they wished to transition to a sustainable livelihoods approach. However, collaboration proved difficult as both approach and skillsets differed somewhat between programmes and leveraging on the resources and community engagement of such organisations met with only limited success.

5.3.1.3 Highlights

- For the fertiliser value chain, PM's facilitation work resulted in chemical fertiliser becoming accessible to rural communities in the North of Nigeria that hitherto had not been seen as a viable and profitable

[9] GESS is an initiative of the Federal Ministry for Agriculture and Rural Development. It is supported by donors such as USAID and now DFID. Farmers are given vouchers entitling them to buy fertiliser at a discount. Some farmers are also given free seeds.

market for the private sector. In addition, the promotion of smaller pack sizes, including 1,5,10, and 25kg bags, meant that small scale farmers, including women who traditionally manage household vegetable plots, were able to purchase the products in affordable quantities in sealed packs rather than having to resort to buying split packs at market which were commonly adulterated. In the states bordering the NE conflict zone, where companies based in the South of the country had previously had minimal presence, PM's work to create awareness of the advantages of using commercial fertiliser, therefore creating demand for distributors to stock such product, led to a secure and reliable supply chain which delivered inputs in a competitive and timely manner. Where chemical fertiliser was banned by the government due to its potential to manufacture explosives, the introduction of compost as a soil conditioner and fertiliser was successful as a climate smart pilot intervention, which will hopefully be picked up by future programmes (see climate smart intervention section).

- In the certified seeds market, PM's Rural Seed Promoter Programme and Community Seed Multiplication programmes successfully addressed the issue of limited farmer access to seeds as a quality assured input. These channels of production and distribution in the heart of rural communities created access for farmers and confidence that the products were not adulterated or fake and were available in time for the planting season. This, in turn, built confidence of seed producers and distributors that the often-remote rural market could be better and profitably served by employing on-ground agents and multiplying seeds on selected community farms, rather than attempting to offer supply from distant urban distribution centres.

  PM's work with crop protection products likewise was designed to bridge the last mile gap in the distribution and application of agro-chemicals. The Spray Service Provider model (SSP) created an extensive network of over 4,000 trained operators, linked to major CPP suppliers, who delivered competent and safe spraying services, thus bypassing the home preparation of often unsafe and fake products. Grouping the SSPs into associations across geographical zones ensured their strength as an effective buying group seeking price discounts from suppliers and created a benchmark of quality practice that both agro-chemical companies and state agencies could leverage on when advocating for better and safer use of such products. Multinational suppliers such as Bayer, and other donor agencies, such as CRS, have adopted this model. Preceding the SSP model was the piloting of an Inputs Application Service Providers (IASPs) network, in partnership with Voluntary Service Overseas (VSO), in response to farmers limited access to inputs, post-harvest technology and markets. This was piloted in Niger State in 2016, targeting established farmers group whose capacity had been already built by VSO.

5.3.2 Agricultural Mechanisation

5.3.2.1 Rationale

PM's agricultural mechanisation initiative was a continuation of work of Propcom 1. The intervention sought to develop a private sector led and coordinated market system that enabled the smallholder farmer to access tractor services in a cost-effective manner. The combination of mechanisation benefits should result in substantial increase in the income of the rural smallholder farmer. Farmers (particularly smallholder farmers) faced a major challenge to access mechanisation services in a timely and affordable manner, forcing them to continue with traditional manual methods of cultivation. A 2014 World Bank Agribusiness data reported a coverage rate of 6 tractors for every 10,000 hectares. However, while the potential market for tractor services is huge in Nigeria, it is constrained by a lack of a financing framework for both the purchase, maintenance, and the hiring of equipment. The recurring systemic constraints include access to finance; absence of guarantee to unlock on-lending to potential tractor owners and Tractor Service Providers (TSPs); mechanisation vendors' preference to facilitate and respond to government patronage; lack of technical capacity; poor after-sales service; and lack of awareness on the availability of tractor hiring services and benefits.

5.3.2.2 Action

To address these constraints and provide inclusive interventions, PM developed business models that shared risk among a range of partners that cut across tractor vendors, TSPs, financial institutions and IT companies, to facilitate access to tractor services and tillers (specifically for women) supported by a series of interventions. These included designing a tractor financing mechanism through which financial institutions provided funds for TSPs guaranteed by Nigerian Incentive-Based Risk-Sharing System for Agricultural Lending (NIRSAL). During the pilot stage, the banks had to individually negotiate with the Central Bank of Nigeria (CBN) for the agricultural credit guarantee scheme (ACGS) to reduce risk for their tractor lease-financing scheme. Other mechanisms developed were a vendor equipment buyback guarantee scheme; training and capacity building to improve technical and business skills of TSPs/Associations; design of an app to track tractors and aggregate smallholder farmers' demand for tractor services. PM also collaborated with a power tiller vendor and the Small-scale Women Farmers Organisation in Nigeria (SWOFON) in 2015, to facilitate womens' access to power tillers (and hence increased access to mechanisation for land preparation, reducing the associated costs and additional revenues from offering tiller services to other farmers in their communities. Partners like TOHFAN received capacity building support from PM across its supply chain (mechanics, booking and hiring agents, website upgrade, association strengthening). Other partners included the Nigeria Agricultural Mechanisation and Equipment Leasing Company (NAMEL); the Northeast Commodity Association (NECAS); the Nigeria Economic Summit Group (NESG); the Federal Ministry of Agriculture and Rural Development (FMARD) and the National Centre for Agricultural Mechanisation (NCAM).

5.3.2.3 Highlights

- When PM first explored the agricultural mechanisation value chain in 2013, availability of such services was negligible across Northern Nigeria. Most initiatives were state led and few machines that were purchased ever became accessible to farmers for land preparation. By the end of the programme a robust and replicable model of hiring equipment through field agents operating a digital platform was being used by several organisations. In addition, the drive to design and deliver an affordable and risk-managed financial model for purchasing equipment had generated support from the Federal Government in the form of risk guarantees, and also from commercial banks who were prepared to loan into a market that they had previously avoided. As a consequence, 90,000 farmers accessed tractor services, with substantial savings in the cost of land preparation. In terms of investment, road shows facilitated by PM led to a commitment of £3.2 million in 2019 by investors; First City Monument Bank (FCMB), a partner bank, increased its investment from ₦120 million (c. £270,000) to ₦300 million (c. £675,000).

- A key partner, TOHFAN, deployed digital management to maximise its output and appeal to investors as part of PM's exit strategy and expanded its reach to thirteen states in Nigeria and into the Republic of Benin. A partner onboarded during the extension phase, NECAS, replicated the tractor service provision model which resulted in expanded access to mechanisation services across Gombe, Borno, Taraba, Bauchi, Adamawa and Yobe States, as a result of which 9,000 smallholder farmers, who hitherto had limited to access to mechanization services, were served in the NE.

- The Government of Nigeria changed its policy on agricultural mechanisation to support the growth of TOHFAN; in 2021, FMARD introduced a mechanisation policy entitled: "National Policy on Agricultural Mechanisation – NAPAM.

- The catalytic effect of commercial financing saw a number of new entrants like TRAXXI, Alluvial and ACT with about 12,000 units of tractors (valued at £9.8million) in service compared to just 27 in 2016.

5.3.3 Poultry (Animal) Health

5.3.3.1 Rationale

The focus on poultry was initiated in the Legacy Phase of the Programme. It has been estimated that backyard farms account for a significant proportion of poultry production in Nigeria with most of these producers being women in rural northern Nigeria. The market in northern Nigeria for healthy village chickens, was estimated by the Food and Agricultural Organisation (FAO) and the Federal Ministry of Agriculture and Rural Development (FMARD) to be in excess of ₦30 billion in 2013. PM targeted interventions in this segment of the market based on its relevance to women, livelihoods and household nutrition. The initial goal was to reduce the burden of Newcastle disease in village/local chickens which can result in mortality rates of up to 80%. While a low-cost vaccine was available, farmers lacked the awareness and the rural market was unattractive to vaccine suppliers because of logistical costs associated with serving farmers with smallholdings, widely dispersed in rural communities, rendering such business less appealing than simply servicing large commercial farmers.

6.2.3.1. Action

In response, PM developed a grassroot delivery model, working with veterinary pharmaceutical companies to strengthen the distributional channel through "community vaccinators". PM partnered with the National Veterinary Research Institute (NVRI) to increase the production and supply of thermo-tolerant Newcastle disease vaccine, NDV-i2 and facilitated linkages between NVRI and interested pharmaceutical suppliers and distributors for delivery to the last mile through peri-urban distributors and community vaccinators. PM partnered with Agriprojects Concept International (ACI) based in Kaduna to pilot the community vaccinators' model in Jigawa State (2012/2014), and it was later scaled up in Benue, Nasarawa, Niger and Gombe States. PM also worked with partners who showed interest and demonstrated capacity to manage a rural vaccine distribution system – NVRI and their outstations, Ambuvet Consult, FDH and TurnerWright.

During the Extension Phase, aspiring vaccinators were expected to make some financial commitment to securing vaccines before participating in the company's free trainings. This enabled the selection of entrepreneurial individuals willing to put their skin in the game. At the time, the commitment was about £5 with the potential of earning of £25 if the vaccinators offered commercial services to poultry farmers. In locations where peri-urban distributors were not present or sparce, PM introduced a collaboration with CBOs and FBOs, which allowed veterinary suppliers to leverage the CBO/FBO network to supply vaccines to communities, activate vaccinators and raise community awareness on the disease and availability of the vaccines. CBOs were a strong “quasi-distributor” and community influencer, given their grassroot networks and credibility in targeted locations. The Programme also worked with NVRI to convert their moribund outstations into viable business operations, serving as regional supply hub for vaccines as well as playing a more active role in extension services. By 2019, the Programme expanded to include vaccination against Pestle des Petits Ruminants disease in small ruminants such as sheep and goats, increasing the business opportunities available to the existing vaccinators network.

6.2.3.2. Highlights

- By addressing several constraints in the poultry vaccination value chain, notably the supply of thermotolerant Newcastle Disease vaccine and the establishment of a last mile vaccinator model, village poultry has now become a viable source of additional family income and nutrition in rural communities. This initiative also successfully addressed the women’s economic empowerment remit of PM, as poultry are almost exclusively the responsibility of female household members.
- A key anchor for the work was the capacity building of NVRI’s vaccine production unit, hitherto starved of investment and only weakly linked to the rural market, transforming it into a local production hub with outstations that ran for profit and distributed a range of the Institute’s vaccines across the North and North East.
- The innovation of trained rural vaccinators enabled rural veterinary services to be promoted as viable business opportunities, utilizing a thermo-stable vaccine that avoided the need for a cold chain to ensure its delivery of viable vaccines to remote rural areas.
- Being an efficient channel for affordable veterinary services and pharmaceutical products to rural livestock farmers, partner organisations expanded the network of vaccinators through their own investment as the channel had become the entry point for other veterinary products, driven by farmers demand for poultry and livestock vaccination.
- Overall, more than 2,000 vaccinators were recruited and remain actively engaged in providing vaccination service for a fee to smallholders; >12 million doses of NDV-i2 vaccines have been produced and supplied by NVRI during PM’s collaboration between 2012 and 2021 as compared to the less than a million cumulative doses produced in the preceding decade; 3 CBOs remain active as quasi-distributors and 4 NVRI outstations have become business-oriented, 3 of which are actively engaging clients in the conflict-affected NE of Nigeria – Borno, Adamawa and Bauchi.

5.3.4 Community Animal Health Workers Programme

5.3.4.1 Rationale

As PM facilitated the rural uptake of vaccines through the community vaccinators’ model (see Section 6.2.3), it became apparent that the vaccinators’ potential mandate was limited by their technical capacity and legislation related to the provision of animal health services. The regulatory body, Veterinary Council of Nigeria (VCN) had, in the past (2006), began the development of a curriculum for community-based operatives but it was never implemented. While veterinary pharmaceutical companies and distributors were interested in leveraging such grassroot channels to get their products to farmers, they relied upon VCN to put in place the necessary regulation and associated programmes to enable community members to offer animal health services with a defined scope and supervisory framework to guide their actions.

5.3.4.2 Action

In response, PM began an advocacy and policy intervention aimed at generating evidence and sensitizing veterinary stakeholders on the gaps on rural veterinary access and the opportunity for establishing a community animal health workers (CAHW) programme, highlighting the benefits to veterinarians and impact on disease control, surveillance and livestock security. PM worked with the VCN to establish the CAHW programme to strengthen access for the last mile user to veterinary products and services. A curriculum and training programme was established which was expected to be self-funded by individuals or by interested stakeholders. PM and VCN succeeded in getting the programme institutionalized with the approval from the Minister of Agriculture and adoption at state level. PM partnered with Jigawa and Kaduna States to roll out the CAHW Programme with veterinary pharmaceutical distributors like Tropical Poultry and Ambuvet investing in the process. To aid VCN, PM provided field insights on the gap in rural veterinary access and presented papers at various fora to make the case and get the buy-in of veterinarians who showed some resistance and concerns on allowing non-surgeons to handle biologicals. While VCN trained and certified CAHWs and with some levels of infrastructural support, PM continued to provide the necessary technical support to ramp up the distribution of vaccines.

5.3.4.3 Highlights

- Professional governing bodies, such as VCN in this case, very rarely relinquish any part of their effective monopoly on the delivery of services. Therefore, it was a noteworthy win for the programme to persuade VCN that some basic veterinary tasks could be affordably performed by lay practitioners, CAHWs, in rural locations. This was a positive outcome for all parties, as it meant that veterinarians then had a profitable route via CAHWs to reach distant communities with products and services, and farmers and livestock keepers could now access rudimentary veterinary care. In addition, some disease surveillance was now possible, which had been abandoned with the demise of the state paravet service some years previously. Driving the advocacy agenda required considerable collaboration with organisations like CAPRO, NVRI and COCIN and projects like ACGG and FCDO/MADE until an approved curriculum was in place. The collaborations expanded to include the Nigerian Veterinary Medical Association (NVMA) to ensure general acceptance of the programme.
- PM piloted the CAHW Programme in Jigawa State, supporting the State to establish the training modality, along with the use of technology (smart phones) to drive disease reporting and surveillance. The intervention was well received by farmers as demand for veterinary products outstripped supply. Four states have now adopted the model – Kaduna, Jigawa, Adamawa and Borno - with over 300 CAHWs trained and certified, offering services in their communities, and companies like Ambuvet, ACI and TurnerWright have begun to leverage the network of CAHWs to get relevant veterinary pharmaceutical inputs to smallholders.
- Further evidence of the adoption of the CAHW model as the industry standard for delivering rural veterinary services was seen as PM engaged FAO and ICRS to adopt the PM CAHWs model rather than the usual practice of training beneficiaries outside of the formal VCN-endorsed system.

- PM also supported Kaduna State and by working with a distributor and the trained CAHWs, leading to the roll-out of mass vaccination against Newcastle disease and PPR across the State, institutionalizing the public-private partnership channel as a system for efficient vaccine delivery and coverage.

5.3.5 Poultry Production and Marketing

5.3.5.1 Rationale

This intervention was targeted to build on the poultry health interventions (see Section 6.2.3 and 6.2.4). The intervention was designed to improve the production practices of poultry farmers, who are predominantly women, to grow the flock size as well as the quality of birds. This was only viable following the widespread establishment of vaccination channels by private sector partners for the birds, facilitated by PM's health interventions. Prior to the intervention, farmers had limited knowledge on poultry production practices with resultant low productivity. On the offtake side, the small size of holdings makes rural producers unattractive to processors who would need significant volumes and require consistency in standard table weight size of at least 1.5kg to compete favourably in the formal market. Furthermore, PM found that smallholders have limited incentive to embrace vaccination and poultry health practices where there is no evidence of demand beyond their own household and immediate environs. Therefore, a market for processed and packaged local chickens for the high end of the market was seen as key to increasing incomes and opportunities for village chicken farmers.

5.3.5.2 Action

In response, the Programme designed two interventions: Improved Poultry Production, and Local Chicken Processing and Marketing. The improved poultry production was anchored on five practices: (i) Poultry health training; (ii) Housing with brooding space provision; (iii) Separation (Early Weaning) and brooding of chicks; (iv) Supplementary feed to augment what the birds scavenge; and (v) Introduction of improved cockerels to improve the genetics of the local birds in terms of growth rates and feed conversion rates. For Local Chicken Processing and Marketing, PM facilitated setting up local chicken aggregation networks with lead aggregators in four states, whose capacities were built to source supply from the network of local chicken producers. PM also facilitated linkages between the lead aggregators and processors/retailers as well as collaborated with private sector players interested in investing in the promotion and retailing of processed local chickens. The interventions were piloted in FCT, Benue, Plateau, Kaduna and Kano states and upscaled in the nine states of the Extension Phase.

The processing and marketing intervention was piloted late 2015/early 2016 with Nkataa Mart (an online grocery retailer and restaurant) and Geetee farms (processor and retailer). PM worked with both partners to generate sufficient demand for local chicken to grow investors' confidence and strengthened the aggregation models. PM also supported market linkages to vaccinators, aggregators, processors, and retailers to high-end markets. To scale up, PM built the capacity of the processor L&Z and supported the partner to establish production hubs and undertook marketing as well as promotional activities to create awareness and general acceptance of local chicken at the high ends of the market, notably in urban supermarket chains.

5.3.5.3 Highlights

- 120,000 women were trained both in improved chicken production and formed accountability groups to support their exchange of knowledge and experiences. As a result of this intervention, farmers recorded 7-8 cycles of production within a one-year period, rather than the more usual 2-3 cycles associated with traditional management practices. As flock sizes increased rapidly and sustainably, knowledge transfer by oral tradition, where no trainings have taken place, became the order of the day. This resulted in varying degrees of adoption of the different components of improved production. PM also piloted fee-based training of women in Kaduna and Jigawa where 178 paid out of pocket to attend.

- National supermarket outlets, such as Shoprite, Grandsquare and Justrite, and online shops including Nkataa, now stock village chicken products alongside their more usual intensively farmed broiler chicken products. Similar products are also more widely available in less formal markets, restaurants. And fast-food outlets across the country as a direct consequence of the programme's work in the sector.

5.3.6 Milk Processing and Aggregation

5.3.6.1 Rationale

Dairy products play a key nutritional role in family health in all levels of Nigerian society and provide an economic opportunity for pastoralists with improved productivity and value chain development. Milk production by dedicated dairy units in the country is limited, constrained by poor genetic quality of the cattle, poor animal nutrition, poor quality and quantity of product, a very weak and fragmented cold chain and limited value addition through processing. In 2017, local production costs were said to be around ₦300 per litre of raw milk, compared with ₦150 for milk reconstituted from imported milk powder. There is increasing recognition by both government and the private sector that dependence on costly importation is not sustainable, and there is significant potential to stimulate local milk production of a quality to match market expectation. This is further buttressed by the government action of reducing the subsidy on imported milk powder. Options therefore exist to integrate smallholding pastoralists into local dairy processing chains to facilitate more efficient production and aggregation, providing access to information on market requirements, new technology and skills in animal husbandry and health from the processors, with resultant steady supply of improved quality, higher volume milk to a guaranteed premium market.

5.3.6.2 Action

In response, PM worked with milk processors to expand their network of smallholding pastoralists supplying them quality milk. A pilot was initiated in partnership with ARLA, a large European dairy processor with a significant share of Nigeria's imported milk powder market. Commercial sourcing of milk from local communities was an import-substitution strategy for ARLA whilst improving the productivity of traditional Fulani dairy cattle. It was conceived as a long-term engagement, to bring a company with a significant UK commercial background to engage with Fulani communities in need of entrepreneurial opportunity as they settle, moving away from their traditional nomadic culture. The model involved the establishment of milking parlours in select communities, with aggregation hubs in Kaduna State, cold transportation and storage for milk, combined with capacity building on nutrition, animal husbandry and animal health services through paravets and extension agents. The ARLA partnership also including MILCOPAL, a processing plant owned by Cooperatives of Fulani Pastoralists. The intervention was implemented in Kaduna and later scaled to Taraba State, in partnership with a processor, Ardo.

PM supported ARLA in the training of extension agents who, in turn, delivered capacity building to farmers for increasing quality milk production. ARLA installed three milking parlours close to participating communities, where milk is collected and sent for processing at the Milcopal processing facility in Kaduna which is currently managed by ARLA. Other milk collection points were also established, where farmers bring milk for payment, following quality testing. PM has also facilitated the training of milk parlour and collection point staff in business management and herd management.

Portable milking devices were later introduced within the groups in Kaduna as an alternative to the limited milking parlours. To scale the dairy work and explore further the introduction of handheld milking devices, PM partnered with an indigenous processor, Ardo Yahaya Global Ventures (AYGV), based in Jalingo, Taraba State.

5.3.6.3 Highlights

- Over 20,000 pastoralists benefitted from the capacity building support, with milk offtake from close to 3,000 of them, and linkage to extension agents for continued support. The intervention succeeded in improving milk volume and quality and Kaduna State Government, having seen the benefits of the models, initiated the Damau Household Project, to settle registered pastoralists in one location.

- The scale of the milking parlours was limited, given its high costs and small capacity, so, in response, the Programme introduced the use of portable milking devices into the pastoralist groups, with suppliers connected to milk processors who assisted in deploying the milking devices for milk collection. The integration into the processors' chains meant that in the face of the disruptions experienced during the COVID-19 lockdown, pastoralists connected to these processors continued to have access to market for their milk, earning the needed revenue to keep afloat. AYGV has been able to obtain NAFDAC certification, allowing them to expand the distribution of their milk products to neighbouring states, including Adamawa.

5.3.7 Electronic Warehouse Receipting System

5.3.7.1 Rationale

The Electronic Warehouse Receipting System (EWRS) intervention was motivated by the need for an efficient warehouse storage facility, designed for smallholder farmers. It was orchestrated by the Associated Foreign Exchange (AFEX), an organisation borne out of the desire to create "value within the agricultural value chain" with a view to developing best practices for grain storage and handling. The objective was to establish an efficient channel for smallholder farmers that provided them access to high quality agricultural inputs, financing and high value markets. Under the system, an electronic warehouse receipt, which represent the stored commodity, was issued by the warehouse to the smallholder farmer. The receipt is the security instrument that is traded on the commodity exchange. By means of the intervention, smallholder farmers were able to store their crops for future sales in AFEX warehouses. The key constraints were the absence of warehousing services and aggregation systems for smallholders and a disconnect with premium offtakers, with the open market being the only channel for the smallholder and merchants in open markets typically squeezing farmers' margins.

5.3.7.2 Action

In response, PM collaborated with AFEX to assess the potentials of the market and subsequently designed interventions to create awareness amongst farmers on the existence of the commodity exchange and benefits. This was initiated in the Legacy Phase of the Programme and scaled up into the NE in the Extension Phase, with PM eventually partnering with GIZ and input distributors to scale coverage to the NE. After the initial pilot in Kaduna in 2014, it was scaled to Katsina, Zamfara, Benue, Taraba and Gombe. Over time, the EWRS intervention provided four key services to the farmers, which were (i) Grain for Fertiliser Swap; (ii) Loan for Fertiliser; (iii) Spot Sales through AFEX Commodities Exchange; and (iv) Storage at AFEX Warehouses. To achieve this, PM facilitated an access to finance partnership for the farmers between AFEX and Lift Above Poverty Organisation (LAPO) Micro Finance Bank, linked AFEX to NIRSAL for loan guarantees and financed Raise Out of Poverty (ROPO) bonds for working capital support. PM also linked the AFEX partnership with fertiliser companies and agricultural input companies and other micro finance institutions for quality inputs and micro finance loans.

5.3.7.3 Highlights

- The EWRS intervention created a new option for farmers seeking input and offtake services beyond their usual dependence on local markets and middlemen, and also delivered access to the formal banking system and knowledge on improving harvest quality to attract premium prices.

- Thousands of farmers joined the EWRS and registered with AFEX. By 2017, AFEX expanded its operations to nine states (Katsina, Kebbi, Zamfara, Benue, Taraba, Kaduna, Gombe, Kano and Plateau); created direct employment for 82 outreach officers; and had reached 89,000 (12,000 women) farmers; while approximately 24,000 recorded increases in aggregate net additional income of approximately £1.5 million. Investment leveraged was about £7.0 million. Two women associations, Quintessential Business Women's Association (QBWA) and Fantsuam Foundation, with combined membership of 6,000 female farmers, joined the warehouse receipting scheme.

5.3.8 Aggregation and offtake

5.3.8.1 Rationale

This composite intervention evolved from successful components of multiple interventions across the nine states in the Extension Phase. It played a crucial role in the provision of sustained support to smallholder farmers throughout the Extension Phase, improving resilience within the context of increasing insecurity and the spread of the COVID-19 pandemic. Drawing on its experience in the Legacy Phase, PM adopted and, in some cases, adapted the EWRS to facilitate sustainable development of warehousing services, grain aggregation and offtake spot sales. Using the aggregation and offtake business model, it focused on sesame seed, millet, hibiscus and rice parboiling because of existing favourable conditions for their production in the region and Partner States. The choice was also informed by the knowledge that these were grown by all rural farmers across gender groups. Other crops were added as the need arose as the initiative was being upscaled and rolled out. The increased production of these crops was seen as having huge potential to enhance household food security, income generation and contribute towards poverty alleviation in the targeted states. However, there were key constraints similar to those that PM experienced with the EWRS in the Legacy Phase including: poor access to quality inputs (seeds, fertiliser & CPPs); poor access to premium off-take markets; limited access to GAP and extension services; limited access to early maturing seed varieties; and lack of access to credit.

5.3.8.2 Action

To overcome these constraints and to drive systemic change, PM deployed several business models established in the Agricultural Inputs, Agricultural Mechanisation, Access to Finance and EWRS interventions to work collectively in the Aggregation and Offtake intervention. PM facilitated partnerships between AFEX, CRS and GIZ to renovate existing warehouse infrastructure across NE states whilst it focused on training and awareness programmes to ensure participation of smallholder farmers. PM joined forces with a broad range of partners: Green Sahel Agro Ventures; the Food Security and Agricultural Product Company (FSAPC); OLAM Flour Mills Nigeria (offtakers); NIRSAL (credit risk guarantee); Dala Foods, TOON (commercial buyers); and Jaiz Bank (micro credit institution); K.B Global (aggregator and exporter); and TOON (hibiscus production and offtake) to ensure a comprehensive package of support was available to farmers. While partners invested in providing farmers with inputs, seeds and fertiliser, PM supported partners in mobilizing farmers and providing GAP education. PM was able to introduce the use of a Rice Advice App (an open-source app developed by Africa Rice) amongst extension agents to aid farmer learning and input precision. Africa Rice team also provided on-site and off-site technical support to the process, with yields more than doubling across most locations in Yobe and Jigawa where farmers adopted the improved practices. For Hibiscus, TOON supplied female farmers with seeds and fertiliser and also worked with KB Global to introduce a post-harvest technology that improved the quality of hibiscus supplied by the women. Beneficiary farmers across Jigawa, Bauchi, Gombe, Taraba and Yobe states reported increased incomes and resilience.

5.3.8.3 Highlights

- Partnering successfully with another donor, in this case the German government through GIZ, showed that significant synergy was possible if the different strengths and objectives of programmes were merged together. Sadly, this is rare, with most programmes operating largely in ignorance of others and sometime even negating the impact of each other, notably when an MSD programme is working in effective competition with one engaged in direct delivery. In this case, GIZ rehabilitated state-owned moribund warehouses, and PM brokered the deal between States and Input/Offtake agents for the commercial use of the warehouses in Adamawa, Gombe and Borno.

- Since 2019, more than 30,000 farmers have accessed inputs and markets through these warehouses annually, and the operators continue to use these warehouses to transact business, particularly in areas on the edge of the NE conflict zone that previously had only very weak linkages to input suppliers and forward markets.

5.3.9 Extension Services

5.3.9.1 Rationale

This intervention was designed to establish sustainable channels for delivering agronomic and business advisory information to farmers as well as to ascertain the viability of market segments that would be appropriate for commercialisation. It was designed to overcome challenges for input suppliers to embed agronomic information in their sales and marketing efforts. The intervention was anchored on three strategies:

- on site fee-for-service trainings, targeting poultry farmers with the value proposition to link to aggregators/processors;
- building the capacity of radio stations to produce insightful agricultural programmes that respond to the extension needs of farmers (with high potential to grow listenership base and revenues); and
- combine the use of Interactive Voice Response (IVR), SMS and helplines to provide agronomy information, market linkages and business advisory to farmers, at a minimal fee.

5.3.9.2 Action

To implement the initiatives, PM partnered and built the technical capacity of radio stations in Adamawa, Bauchi and Gombe as well as working with Farm Innovation Nigeria Limited (FINL). FINL designed a FarmAid platform for onboarding farmers to receive messages that were specific to their farm enterprises and solicited for agronomic advice through toll-free helplines manned by agronomists. In addition, as a component of this intervention, FINL also developed an app (VetWiz) to aid CAHWs to diagnose and manage livestock diseases. With the advent of the COVID-19 pandemic, the scope of the initiative was expanded, to address the primary (health/safety) and secondary impacts of the pandemic. PM contracted Farm Radio International as the technical partner to implement the capacity building for the radio stations. While a call was put out to radio stations in NE, three of them responded and PM eventually provided support to all three - GLOBE FM, GOTEL FM and PROGRESS FM radio stations in Bauchi, Adamawa, and Gombe respectively. Based on the gaps identified by Farm Radio, each radio station made changes to their organisational structure and introduced some innovation into their programming: moved agricultural programmes from pre-recorded to live programmes and introduced the use of Uliza technology to collect farmer feedback. In addition, their marketing teams were trained on how to engage sponsors.

5.3.9.3 Highlights

- As a result of PM's facilitation, radio stations had begun to engage with technical experts to drive their programmes and had secured both advertising revenue and sponsorships from agribusiness stakeholders, delivering sustainable and ongoing change to their business model, and reaching a wide audience of over 3 million with relevant agronomic programming.
- PM's partnership with FINL resulted in the onboarding of over 72,000 farmers who received crop specific GAP advice, weather information, market linkages, commodity price messages via SMS, IVR and toll-free lines.

5.4 Piloting Climate Smart Initiatives

he adoption of a climate smart approach to all intervention work began during the Legacy Phase, with the programme revisiting existing interventions to identify their adherence to the three pillars of Climate Smart Agriculture, namely: (i) sustainably increasing agricultural productivity and incomes; (ii) adapting and building resilience to climate change; and (iii) reducing and/or removing greenhouse gases emissions, where possible. Most existing work clearly identified with pillar (i) and many with pillar(ii). Even Agricultural Mechanisation, despite its dependence on the use of fossil fuels, improved productivity and incomes, thereby building resilience to the shocks of changing climate patterns.

In the extension phase, cognisant of the fact that little time remained to begin interventions that could be shepherded to scale, the programme focussed on piloting proofs of concept in selected areas where either existing activities that would have a positive impact on climate change were nascent or moribund, such as plastic recycling and the regeneration of gum Arabic production, or where novel climate smart technologies could be trialled and demonstrated to test their viability and the enthusiasm of the market to adopt. Here are included solar produce drying and solar powered irrigation pumps.

In this way, PM was able to identify and test CSA initiatives relevant particularly to areas of the NE particularly at risk of further desertification as the Sahel encroaches further into previously productive agricultural areas.

5.4.1 Improved cook stoves and fuel briquettes from crop waste

5.4.1.1 Rationale

Improved cookstoves were seen as a solution to reducing the consumption of wood fuel by rural households, reducing the resulting impact on the environment, through greenhouse gas emission and deforestation. This intervention was stalled by the activities of INGOs and others distributing free stoves to households, undermining PM's commercial model. In the Extension Phase work with fuel briquettes was expanded. This latter initiative involved piloting the production and marketing of fuel briquettes made from crop waste as a substitute for wood derived fuel.

5.4.1.2 Action

PM partnered with CBOs for the production and marketing of briquettes to households in the NE. The significant quantities of post-harvest waste generated from agriculture annually, provided the raw material, converted to briquettes, as a cleaner substitute for charcoal (from logs of wood) and firewood for the rural community, that also deliver savings for household income. Due to awareness campaigns, demand for briquettes soon outstripped supply as the intervention was well received by households. The emerging economic challenge was that some sources of agricultural waste started selling the waste which previously was obtained at no cost.

5.4.1.3 Highlights

- Though only a pilot limited by the programme lifecycle, strong evidence of the commercial viability of briquetting businesses was seen, particularly in areas of rice production where rice husk was freely available.

5.4.2 Weather data derived products

5.4.2.1 Rationale

The intervention sought to leverage on the correlation between rainfall and crop yields, by providing crop specific weather data, therefore providing the farmers with better opportunities to respond to changing weather patterns.

5.4.2.2 Action

PM partnered with Kukua, a meteorological data service company based in the Netherlands, to support the design and the pilot of a weather derived data product disseminated via a text messaging route for maize farmers. The farmer would thus have access to time sensitive meteorological information for the planting season, leading to increased productivity and revenue, hence resilience to climatic change.

5.4.2.3 Highlights

- Although, farmers were excited about the initiative, the apparent lack of cooperation and imposition of local regulations from the national Meteorological service stalled the initiative. The intervention was closed prematurely in the Legacy Phase of the Programme.

5.4.3 Solar drying services

5.4.3.1 Rationale

The motivation for the intervention was the post-harvest losses sustained by farmers due to logistical challenges along the vegetable value chain. Sun drying of food crops is an established and widespread method of preservation, but the product is easily contaminated with dirt and the process is dependent on dry weather conditions, leading to up to 50% loss of saleable produce. The intervention was intended to significantly reduce postharvest losses whilst generating revenue for the operators of the solar dryers, thereby creating a win-win situation, together with the potential to reduce GreenHouse Gas (GHG) emission.

5.4.3.2 Action

The partnership was with a renewable energy company, Creeds, to pilot a project that would reduce vegetable and fruit losses sustained by farmers by solar drying within vegetable (particularly tomato) producing clusters. Initiated in 2017, this was seen as a game changer which presented an opportunity to demonstrate the potential for renewable energy utilisation in food preservation and processing in northern Nigeria. However, efforts to test solar dryer under field conditions in Benue were not successful, principally due to issues of insecurity. Also, the technology proved to be under-developed at the time, though the initiative was revisited during the Extension Phase of PM, drawing on the learnings from this trial. In 2019, PM went into partnership with two social entrepreneurs to deploy locally fabricated and imported dryers in Jigawa State, Kaduna, Gombe and Adamawa under a cost sharing arrangement. SOSAI, one of PM's partners in Kaduna, established drying centres managed by women's groups across Gombe, Kaduna and Adamawa. Additional dryers were installed in Adamawa through PM's partnership with TOTAL Nigeria.

5.4.3.3 Highlights

- Work in the extension phase showed the driers to be viable, as a source of income to operators, though this did not take into account the initial infrastructure costs. However, where there is a donor or CSR initiative, such driers are a positive means to reduce loss and improve the livelihoods of farmers. Further longer-term work is necessary to understand the complete model's viability in paying off installation costs over a longer period than was available to the programme.

5.4.4 Plastic Recycling

5.4.4.1 Rationale

Indiscriminate disposal of plastics is a common practice in Nigeria particularly in places where the rate of recycling is low. Northern Nigeria was not an exception.

5.4.4.2 Action

Accordingly, PM partnered as a green shoot initiative with a Social Entrepreneur (eTrash2Cash) for recycling of plastics in Bauchi, initiated in the Extension Phase of the Programme. The Social Entrepreneur worked with people with disabilities (PLWDs) to establish a trusted collection chain. The Partner (eTrash2Cash) has continued to expand their reach, even after PM's exited, as their services are in high demand in the pharmaceutical sector for safe disposal of medicine containers.

5.4.4.3 Highlights

- Though only a small pilot, the initiative showed the viability of collecting plastic waste for recycling and should be revisited in any future programme working with climate smart activities in the North.

5.4.5 Solar Irrigation

5.4.5.1 Rationale

This intervention was implemented in Adamawa and Taraba. It focused on facilitating access to solar-powered pumps with a view to increasing crop production cycles in a year, save costs and reduce GHG emission associated with fossil fuel; and ultimately increase income.

5.4.5.2 Action

The pumps were either acquired by direct asset acquisition, or through a service provision hire model. PM partnered with suppliers of solar pumps to improve availability in the hope that a proof of concept would emerge at the end of the pilot. It also supported partners to identify potential irrigation locations, using GIS mapping, and demand creation activities; and also facilitated linkage with MFIs for solar irrigation finance for small holders.

5.4.5.3 Highlights

- Though this initiative has potential, presently the significant upfront investment proved to be key factor that undermined its uptake and future success.

5.4.6 Compost as an alternative to inorganic fertiliser

5.4.6.1 Rationale

Primarily this intervention was a response to the official ban of chemical fertiliser by in the NE by the GoN which created a challenge to the farmers in that geopolitical zone. It is also a climate smart intervention to increase farmers income, resilience and reduce emissions.

5.4.6.2 Action

PM supported a consultancy to assess the feasibility of commercial compost production, the outcome of which was positive. Due to the absence of an SME to produce compost in the regions, PM partnered with a Lagos based World Bank sponsored compost producing SME to facilitate distribution and marketing of the product in the NE, alongside supporting 2 major input distributors to increase local availability in the BAY States.

5.4.6.3 Highlights

- The NE pilot was a success with various field-based pilot plots recorded a substantial impact on crop production. While PM was constrained by the approaching programme end date it is hoped this opportunity will be taken over by a private sector or donor initiative in the future.

5.4.7 Agroforestry

5.4.7.1 Rationale

This intervention sought to promote sustainable agroforestry practices that enhanced income for rural farmers by improving their market competitiveness in the production and supply of quality gum Arabic to offtakers, whilst securing the trees as assets, with further planting of new saplings, thereby addressing deforestation as part of a climate smart agenda. The constraints ranged from limited knowledge of best practices, poor soil fertility, poor access to gum Arabic seedlings, lack of knowledge on soil rehabilitation methods, limited access to basic technology and weak access to the premium market.

5.4.7.2 Action

PM partnered with a private sector aggregator company that specializes in exporting gum Arabic, hibiscus flowers, sesame seeds, soya beans, ginger and other commodities. PM also worked with the National Association of Gum Arabic Producers Processors and Exporters of Nigeria (NAGAPPEN) and built the capacity of the organisation to deliver value to farmers across the gum Arabic value chain. As a result, the aggregator company reported improvement in quality of the commodity and the offtake price was 5% higher than the going rate market value.

5.4.7.3 Highlights

- This pilot was successful in building industry capacity and creating linkages to an offtaker for export. Once again, the success, however, was limited by the programme close-out and would benefit from further facilitation support to deliver sustainable scale in rejuvenating this once prosperous industry.

5.5 Women's Economic Empowerment Interventions

These specific activities were delivered in addition to mainstreaming a WEE agenda throughout the major interventions listed previously.

5.5.1 Rice Parboiling (Rice Processing)

5.5.1.1 Rationale

Rice parboiling is a micro business mostly undertaken by women in northern Nigeria at the household level. Most parboilers are women and the financial returns are low. The constraints range from lack of financial resources, and access to profitable markets.

5.5.1.2 Action

The aim of PM's intervention was to address the barriers to enable the women participate more effectively in the market. Thus, PM facilitated market linkages between the women rice parboiling groups and the rice traders in their communities, together with capacity building to strengthen their negotiating skills and better manage their business through cooperative efforts, and access to affordable finance through microfinance institutions.

5.5.1.3 Highlights

- By linking the rice parboilers to traders, the women groups were able to purchase rice using their access to credit and process it before selling to traders, thus making better returns than simply processing on behalf of traders.

5.5.2 Acha Processing

5.5.2.1 Rationale

Acha growing and processing is the responsibility of women, and post-harvest processing is associated with drudgery, with no access to mechanisation, with output and returns low. In summary, the systemic constraints are: lack of appropriate technology to produce quality acha (planting, harvesting and processing); weak linkage to high value markets; lack of access to working capital finance to produce in response to demand.

5.5.2.2 Action

PM partnered with Pye Ryat Foods International Ltd (PRFIL), a private sector company in Plateau State, to deploy appropriate technology for processing acha for the women groups, whilst serving as an offtaker for the acha market in the community. This stimulated production (by the women groups) in response to demand, as the labour-intensive processing component of production was then mechanised, with a significant improvement in the quality of the grain and the processor provided a profitable offtake route for the women.

5.5.2.3 Highlights

- The success of this intervention led to the development of new products for the formal market by Pye Ryat as acha became more available from mechanised processing centres. In addition, women planted larger areas for cropping, and the company sought its own land assets to establish a contract growing model.

5.5.3 Sesame Seed Contract Farming

5.5.3.1 Rationale

Sesame seed multiplication was seen as an area of limited activity in areas where farmers traditionally used saved seed from previous harvests, with diminishing yields. Therefore, a private sector agricultural trading company, WACOT, formerly a significant player in the now extinct Nigerian cotton growing industry looked to establish outgrower schemes to boost seed production.

5.5.3.2 Action

PM supported WACOT's effort to build the capacity of women farmer outgrower groups with a view to increasing efficiency and sustainability of the sesame seeds production, thereby increasing the benefits to the farmers engaged in the programme. The intervention addressed the lack of farmers knowledge on GAP, poor linkage to markets, and the limited skillset of WACO to manage an outgrower programme.

5.5.3.3 Highlights

- Though successful in part, in that production was significantly increased, WACOT struggled to recoup its investment in inputs provided to the farmers on credit.

5.5.4 Shea processing and marketing

5.5.4.1 Rationale

It has been estimated that over 800,000 rural women in northern Nigeria derive income from shea nut collection and in-village processing of the nuts into shea-butter and oil. Of this, about 90% are primary processors and so do not sell into the formal processing market, and as a result, Nigeria has not taken advantage of its potential in shea production estimated to be 35% of the market in West Africa. By extension, the shea industry, dominated by women, gains little value for their efforts in stark contrast to neighbouring West African countries. The barrier had been traced to systemic constraints including sub-standard quality of shea nuts, limited access to markets, information and opportunities, and lack of access to finance to fund investment in large scale processing.

5.5.4.2 Action

PM partnered with Karite Oil Nigeria Limited and facilitated market linkages to develop a long-term market demand for shea. This served two purposes. It created an offtake market for the shea production as well as a potential export market for the company, thereby increasing financial returns. The second intervention was capacity building, designed to improve the processing technical capacity of Karite in the form of technical appraisal, (to ascertain its ability to meet the large volume demanded by respective buyers) and capacity building in the supply chain to ensure the women shea nut collectors undertook the initial processing correctly to maximise yields of the butter product further down the market chain. The third intervention was to facilitate access to working capital in order to leverage funds for shea nut purchases.

5.5.4.3 Highlights

- Though much impact was seen at field level, with women processors embracing more effective post-harvest parboiling techniques, this work in Shea butter production ultimately stalled as the processor, Karite, failed to secure sufficient financing to upgrade its processing plant and buy sufficient raw shea nuts during the harvesting season to meet the secured export opportunities.

5.6 Access to Finance

5.6.1 Rationale

Access to finance was an initiative that cut across all rural agricultural markets. Lending to agribusinesses is considered high risk because smallholder farmers lack the collateral and credit history normally required by lenders. PM's assessment of the financing needs of its interventions included: working capital financing (inputs, commodities trading, raw materials), and fixed assets and equipment financing (such as agricultural SME processing equipment, mechanisation services, etc.). PM's access to finance strategy aimed to:

- Identify finance need of partners across the value chains and link such partners to potential sources of finance; and facilitate partnership with willing financial institutions (FIs) to unlock financing opportunities;
- Support partners to develop bankable business proposals to participating FIs; and also link them with business development service providers to receive support; and
- Support FIs to develop appropriate financial products that meet the needs of target clients who are operating within PM's markets/value chains.

5.6.2 Action

Owing to the recurring challenge of financing needs across interventions, PM established an A2F portfolio to coordinate and strengthen initiatives that enable the financial institutions to partner with agribusinesses in northern Nigeria. Having developed the A2F portfolio, PM designed its approach to engage partners across markets and improve their access to finance. Tools used included: (i) Guarantees; (ii) Raise out of Poverty (ROPO) Bonds; (iii) Returnable grants; and (iv) Influencing equity policy of FIs. Depending on the intervention, one of, or a combination of, these tools was deployed to achieve the objective of improving the target beneficiaries' access to finance in the nine states. The intervention addressed three challenges: (i) Inappropriate loan products for some sectors; (ii) High equity contribution required by financial institutions, and (iii) Limited capacity of micro-enterprises to understand and manage local application processes and repayment procedures.

The ROPO bonds were used in the Legacy Phase and both partners supported via ROPO bonds were able to subsequently secure commercial financing for their businesses. The bonds represented loan packages with low interest rates, that could additionally be traded, but principally were used to generate trust amongst other potential investors that the targeted businesses were viable and suitable for further lending. The ROPO bond assisted partners to expand to new areas, attract new investors, and increase the percentage of women members to 25% by 2015. A second ₦40 million ROPO Bond was invested in 2014 to finance Babban Gona's target of 10% increase in new members within the trust groups. The first was a ₦112million ROPO bond issued by Babban Gona (BG). The investment, which was accompanied with technical support was fully returned with accrued interest. Encouraged by the experience with BG, PM invested in a ₦110million ROPO bond issued by AFEX Commodities Exchange Ltd – as a settlement fund for smallholder farmers in commodity trading.

5.6.3 Highlights

- The access to finance intervention recorded several successes including; a collaboration agreement with Development Exchange Centre – for the provision of working capital loans to rice parboiling women groups in Kano and Jigawa; working capital loans from LAPO MFB for two rice women groups in Kano; a returnable Grant for procurement of acha from womens' groups, QBWA; Bridge Finance for shea – Karite Oil Nigeria Ltd; and the successful funding of ROPO bonds, which provided affordable working capital to two partners, who repaid on time and in full.
- The work with Standard Microfinance Bank successfully demonstrated that high (35%) equity contributions from prospective borrowers were excessive and a barrier to borrowing, with lower requirements delivering an equally successful repayment pattern. Building on this confidence SMFB then sought business from IDP locations in Adamawa, demonstrating that such victims of conflict and displacement could also be considered as viable candidates for formal banking services.

6 Results

Given the approach adopted, the markets identified, and the interventions pursued, this section assesses the extent to which the targets set for the programme were attained. Using a logframe format, indicators and targets for both the Legacy Phase and the Extension Phase were agreed upon. PM developed a results measurement system in accordance with the best practices as laid down by the Donor Committee for Enterprise Development (DCED) to ensure a rigorous appraisal of performance was maintained.

6.1 Performance against Legacy Phase Logframe Targets

Table 2 over the page presents actual performance against targets for the Legacy Phase Logframe. PM managed to achieve all the targets for the Legacy Phase, except the ones for female access and beneficiaries. Traditional gender roles obtaining in northern Nigeria made access challenging and the programme was slow to adapt its programming to reflect this. By the time things started to move in a positive direction, there was insufficient time to reach the targets for female involvement. However, the changes instituted towards the end of the Legacy Phase would reap benefits in the Extension Phase.

During the Legacy Phase, Access results (those associated with Output 1.3 of the Logframe) were dominated by the Agricultural Inputs intervention (see Table 1), some of which were themselves a legacy of Propcom 1 and were carried forward into PM. At the beginning, the results were heavily skewed towards the fertiliser interventions which, at one point, accounted for over 90% of the results. While this distribution improved over time, Agricultural Inputs still accounted for over half of the results by the end of the Programme. The top three markets of Agricultural Inputs, Agricultural Mechanisation and Aggregation & Offtake comprised over 80% of the results. Women's participation was low during this phase, making up just 20% of the overall results.

Table 1: Distribution of Access Results by Intervention and Gender

Interventions	Access [Overall]	% of Total	Access [Female]	% Female
Agricultural Inputs	559,381	54.1%	105,643	18.9%
Agricultural Mechanisation	156,920	15.2%	22,020	14.0%
Aggregation & Offtake	132,767	12.8%	25,711	19.4%
Poultry & Livestock	90,751	8.8%	48,703	53.7%
Soap and Handwashing	71,571	6.9%		
WEE Initiatives	11,643	1.1%	10,756	92.4%
Access to Finance	8,138	0.8%	383	4.7%
Climate Smart Initiatives	2,568	0.2%	1,025	39.9%
Grand Total	**1,033,740**	**100.0%**	**214,241**	**20.7%**

Table 2: PM's performance compared to Logframe Indicators for the Legacy Phase

Indicator		Programme Target	Actual Results	% Achieved
OUTCOME				
Outcome 1: Number of poor farmers and small-scale rural entrepreneurs recording net additional income change as a result of programme activities and are therefore more resilient	Total	500,000[10]	669,891	134%
	Female	250,000	146,578	59%
Outcome 2: Aggregate net additional income among poor farmers and small-scale rural entrepreneurs in selected rural markets as a result of programme activities (NGN/GBP).	NGN	6,054,049,469	9,675,008,063	160%
	GBP	23,834,840	27,286,793	114%
OUTPUT				
Output 1.1: Number of market players supported to invest in pro-poor interventions/activities through programme facilitation	Total	16	63	394%
Output 1.2: Amount of investment leveraged through market players (NGN/GBP).	NGN	3,100,000,000	17,658,557,394	570%
	GBP	12,500,000	48,988,518	392%

[10] It should be noted that the target identified here was for March 2018. A target of 650,000 was set for 2 years after the end of the Legacy Phase (see Section 3.3)

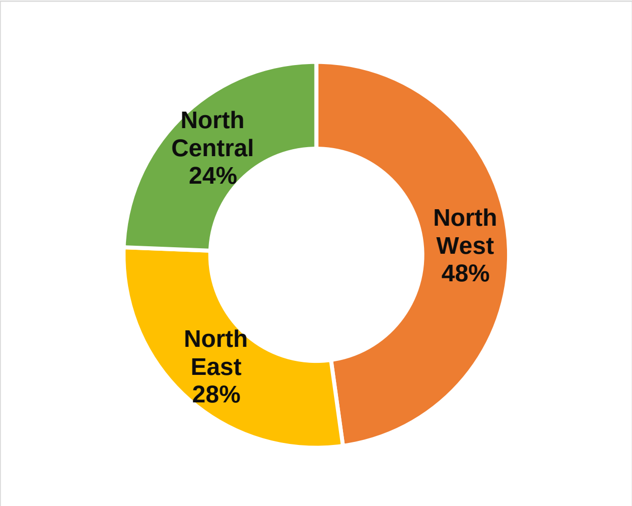
Indicator		Programme Target	Actual Results	% Achieved
Output 1.3: Number of poor farmers and small-scale rural entrepreneurs who access new inputs, knowledge, services, technology as a result of programme activities.	Total	583,050	1,033,740	177%
	Female	287,500	214,241	75%
Output 2.1: Number of interventions that contribute to the improved resilience of poor farmers and small-scale rural entrepreneurs.	Total	16	19	119%
Output 3.1: Number of businesses that buy more from, or invest more in selling to, poor women and men in northern Nigeria, due to a change in practice that can be ascribed to the programme.	Total	8	51	638%
Output 3.2: Number of actions (regulatory changes, policy reforms, practice changes or releases of funds for investment) by state and federal government, supported through programme facilitation	Total	6	14	233%
Output 3.3: Number of development agencies, non-government organisations, farmer organisations and trade associations that have been supported or influenced through programme facilitation	Total	6	27	450%

The conversion rate from access (Output 1.3) to beneficiaries (Outcome 1) stood at around 65% during this phase. However, this conversion factor improved significantly during the Extension Phase. Even though there were no geographic targets as such for the Legacy Phase, the geographic distribution of results is shown in Figure 6, below. Nearly 50% of the results came from the Northwest, especially the Partner states of Kano and Kaduna, followed by 28% in the Northeast and 24% in the North Central.

Table 3: Distribution of Beneficiary results by Market and Gender

Market	Benefit [Overall]	% of Total	Benefit [Female]	% Female
Agricultural Inputs	389,430	58.1%	66,695	17.1%
Agricultural Mechanisation	156,920	23.4%	22,020	14.0%
Poultry & Livestock	68,883	10.3%	39,539	57.4%
Aggregation & Offtake	34,721	5.2%	7,185	20.7%
WEE Initiatives	11,621	1.7%	10,756	92.6%
Access to Finance	8,138	1.2%	383	4.7%
Soap and Handwashing	178	0.0%		
Grand Total	**669,891**	**100.0%**	**146,578**	**21.9%**

Figure 4: Distribution of Beneficiaries by Region[11]



[11] North East states: Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe; North West states: Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto and Zamfara; North Central states: Benue, Abuja FCT, Kwara, Nassarawa, Niger, Plateau and Kogi.

The Agricultural Inputs and Agricultural Mechanisation interventions contributed roughly equal amounts to the overall income (Outcome 2) increase, accounting for nearly 75% of the total. Here too, women's share remained very low at just 17%, showing that the progress was not equitable towards women.

Table 4: Breakdown of Net Additional Income (GBP) by Market

Market	Net additional income (GBP) [Overall]	% of Total	Net additional income (GBP) [Female]	% Female
Agricultural Inputs	10,180,651	37.3%	2,167,827	21.3%
Agricultural Mechanisation	10,133,723	37.1%	1,322,271	13.0%
Access to Finance	3,560,702	13.0%	315,074	8.8%
Aggregation & Offtake	2,013,271	7.4%	305,299	15.2%
Poultry & Livestock	1,271,193	4.7%	481,808	37.9%
WEE Initiatives	125,986	0.5%	125,027	99.2%
Soap & Handwashing	1,266	0.0%		
Grand Total	**27,286,793**	**100.0%**	**4,717,305**	**17.3%**

The majority of investment leveraged (Output 1.2) during this phase came from the Rice Parboiling intervention (classified under WEE Initiatives) where rice traders were engaged to buy parboiled rice from women rice processors, and the Babban Gona intervention (classified under Access to Finance) where the partner was able to leverage additional funding from various sources after receiving its first funding from PM which then paved the way for more.

Table 5: Breakdown of Investment Leveraged (GBP) by Market

Market	Investment Leveraged (GBP)	% of Total
WEE Initiatives	12,016,969	24.5%
Access to Finance	11,115,930	22.7%
Aggregation & Offtake	10,776,799	22.0%
Ag Mechanisation	7,394,070	15.1%
Ag Inputs	7,052,363	14.4%
Poultry & Livestock	509,529	1.0%
Environmental Initiatives	75,804	0.2%
Soap & Handwashing	47,053	0.1%
Grand Total	**48,988,518**	**100.0%**

6.2 Performance against Extension Phase Logframe Targets

During the Extension Phase, PM's Logframe underwent three changes. The first of these was at the beginning of the Extension Phase when the Legacy Phase Logframe was revised to accommodate the specific requirements of the Extension Phase as articulated in the Business Case. The second change took place at the end of the second year when several indicators were refocused and, to reflect funding sources, International Climate Finance (ICF) indicators were included. The final change happened at the end of the third year when further indicators were added to account for the no-cost extension from April to December 2021. PM's achievements against its Logframe targets are summarised in Table 7 over the page.

A breakdown of the Access numbers by Market (Output 1.3) shows that nearly half of the results (48%) came from the Poultry & Livestock interventions, followed by Agricultural Inputs at 20% and Agricultural Mechanisation at 16%. These three markets accounted for 84% of the total results, showing that the interventions that were initiated during the Legacy Phase were taken to scale during the Extension Phase.

Women accounted for nearly half of the Access results overall (46%) and over 50% in the Northeast. This is in contrast to the Legacy Phase. Much of this success can be attributed to the mainstreaming of gender across the programme's portfolio of interventions as well as the implementation of specific gender-targeted interventions, focusing on areas and sectors where women's involvement/contribution is high.

Table 6: Distribution of Access results by Market and Gender

Market	Access [Overall]	% of Total	Access [Female]	% Female
Poultry & Livestock	435,403	48.1%	320,344	74%
Agricultural Inputs	182,293	20.1%	36,416	20%
Agricultural Mechanisation	143,028	15.8%	25,611	18%
Access to Finance	53,593	5.9%	7,670	14%
Aggregation & Offtake	52,305	5.8%	9,467	18%
Environmental Initiatives	26,858	3.0%	11,404	42%
Partner Engagement	12,543	1.4%	9,228	74%
Grand Total	**906,023**	**100.0%**	**420,139**	**46%**

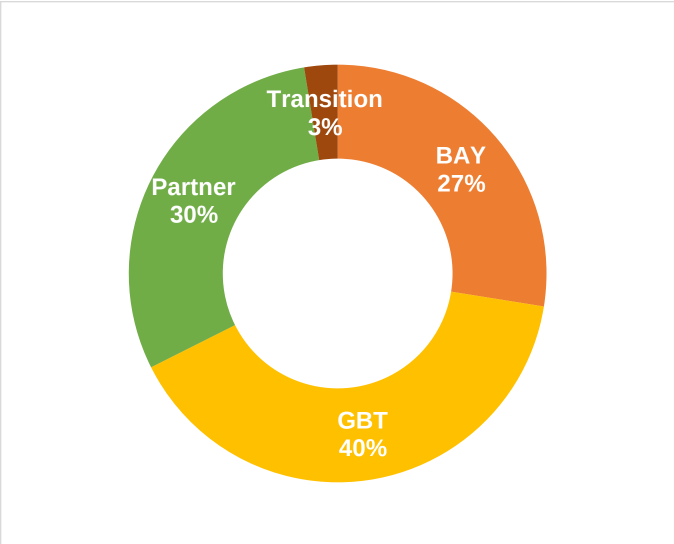
Table 7: PM's performance compared to Logframe Indicators for the Extension Phase

Indicator		Programme Target	Actual Results	% Achieved
OUTCOME				
Outcome 1.1a Number of poor farmers and small-scale rural entrepreneurs recording net additional income change as a result of programme activities (% of women in brackets, Total / NE region).	Total	642,000 (15-30%)	733,245 (49%)	114%
	North East	420,000 (15-25%)	473,315 (55%)	113%
Outcome 1.1b: Percentage of poor farmers with at least 15% additional income change compared to the counterfactual.		70%	91%	100%
Outcome 1.2: Aggregate net additional income among poor farmers and small-scale rural entrepreneurs in selected rural markets as a result of programme activities (NGN/GBP).	NGN	31,000,000,000	42,958,502,204	139%
	GBP	63,965,530	85,229,212	133%
Outcome 2: Number of farmers and small-scale rural entrepreneurs with increased resilience to climate change as a result of the programme's CSA activities (% of women in brackets, Total / NE region).	Total	735,000 (15-30%)	838,306 (47%)	114%
	North East	505,000 (15-25%)	569,506 (51%)	113%
Outcome 3: Amount of investment leveraged through market players and key actors (NGN/GBP).	NGN	18,000,000,000	19,054,337,587	106%
	GBP	37,154,214	39,000,950	105%
OUTPUT				
Output 1.1a: Number of partners and market actors that invest in pro-poor innovations that the programme helps to pilot (Total / NE region).	Total	70	70	100%
	North East	51	51	100%
Output 1.1b: Percentage of partners that have continued with the pro-poor innovation since the pilot started and/or made changes to the original business model.		80%	91%	100%

Indicator		Programme Target	Actual Results	% Achieved
Output 1.2: Percentage of surveyed market actors (who do not receive facilitation through Propcom) who report positive perceptions of relevant business models supported by Propcom.		65%	75%	115%
Output 1.3: Number of poor farmers and small-scale rural entrepreneurs who access new inputs, services, technology as a result of programme activities (% of women in brackets, Total / NE region).	Total	735,000 (15-30%)	906,023 (46%)	123%
	North East	505,000 (15-25%)	612,350 (51%)	121%
Output 2.1: Hectares of land that have received sustainable land management practices as a result of the programme.	Total	10,871	10,871	100%
Output 2.2: Number of farmers that have adopted sustainable land management practices as a result of the programme.		5,912	5,912	100%
Output 2.3: Number of interventions targeting the North East region.		29	29	100%
Output 3.1: Number of regulatory changes, policy reforms, or release of funds by government to facilitate activities that is supported by the programme.	Total	8	8	100%
Output 3.2a: Number of actors or organisations (non-government organisations, farmer organisations and trade associations) that have been supported or influenced by the programme (Total / NE region).	Total	30	30	100%
	North East	20	20	100%
Output 3.2b: Number of collaborations with and support given to other development programmes and partners.	Total	5	5	100%
Output 4.1: Number of gov't, development sector, private sector, academia, and/or donor organisations attending lesson learning & comms events.		100	209	209%
Output 4.2: Number of knowledge products documenting PM's experiences.		1	1	100%

In terms of geographical spread, 67% of the total reach was from the Northeast, followed by 30% from Partner States and just 3% from Transition[12] states (the states that PM transitioned out of during the Extension Phase). This is depicted in Figure 7 below.

Figure 5: Distribution of Access results by Tier/Region



Discounting the Transition results, the proportion increases to 69%, in line with the ambitious target of 70% reach from the Northeast. The conversion from access (Output 1.3) to adoption (Outcome 2 - Resilience) stood at 93%, while the conversion from adoption to benefit (Outcome 1.1a - Income) stood at 87%, exhibiting strong conversion of output to outcome. The increase in adoption and benefit ratios can be explained partly by the maturity of interventions and, perhaps to a larger extent, by the maturity of the PM team and the intervention model; farmers had grown accustomed to and trusted the products and services being promoted by PM partners. Anecdotal evidence relating to Output 1.2 indicated positive perceptions of Propcom business models with market actors not directly facilitated by Propcom staff. The proportion of positive perceptions was higher in KKJ states where Propcom legacy was strongest.

As for additional income increase, the Poultry & Livestock interventions, along with the Agricultural Inputs and Access to Finance interventions accounted for over 85% of the total income increase. Women's income contributed for 41% of the total, indicating that the income increase has been more equitable than in the previous phase.

[12] Transition states: Abuja FCT, Benue, Katsina, Kebbi, Kogi, Kwara, Nassarawa, Niger, Plateau, Sokoto and Zamfara.

Table 8: Breakdown of Net Additional Income (GBP) by Market

Market	Net additional income (GBP) [Overall]	% of Total	Net additional income (GBP) [Female]	% Female
Poultry & Livestock	31,879,065	37.4%	23,813,762	75%
Agricultural Inputs	28,072,973	32.9%	7,482,168	27%
Access to Finance	13,739,739	16.1%	2,327,225	17%
Aggregation & Offtake	6,450,461	7.6%	733,918	11%
Agricultural Mechanisation	5,085,433	6.0%	415,034	8%
Environmental Initiatives	1,541	0.0%	1,479	96%
Grand Total	**85,229,212**	**100.0%**	**34,773,586**	**41%**

When it comes to Investment Leveraged (Outcome 3) from partners and key market actors, the Aggregation & Offtake interventions had an outsized impact, accounting for over 60% of the total. This was mainly due to the investments made by private partners for aggregating grains and other high value products such as hibiscus from smallholder farmers.

Table 9: Breakdown of Investment Leveraged (GBP) by Market

Market	Investment Leveraged (NGN)	Investment Leveraged (GBP)	% of Total
Aggregation & Offtake	11,717,640,932	23,876,728	61.2%
Agricultural Inputs	3,116,795,596	6,423,216	16.5%
Access to Finance	2,362,561,667	4,891,560	12.5%
Agricultural Mechanisation	1,347,202,684	2,768,339	7.1%
Poultry & Livestock	431,057,203	878,341	2.3%
Environmental Initiatives	79,079,506	162,765	0.4%
Grand Total	**19,054,337,587**	**39,000,950**	**100.0%**

6.3 Combined Performance against Logframe Targets

Despite the changes in Logframe indicators between the two phases, some indicators have remained roughly the same throughout the programme. It is therefore possible to aggregate the results for these indicators for the entire duration of the programme. These are presented in Table 10 over the page. The results indicate that the Programme has performed well against the combined indicators over the life of the Programme.

Programme staff were very conscious of the targets set by DFID/FCDO and managed their interventions accordingly. Sufficient Programme funds were allocated to the measurement of results so that data was not just gathered, it was systematically aggregated and analysed. This allowed for real-time adjustments to interventions in response to performance and with respect to the targets and ambitions of the client.

Table 10: Combined results of Legacy and Extension Phases

Indicator	Target	Result	% Achieved
Number of poor farmers and small-scale rural entrepreneurs recording net additional income change.	1,142,000	1,396,598	122%
Number of poor farmers and small-scale rural entrepreneurs who access new inputs, services, and technology.	1,404,050	1,933,224	138%
Aggregate net additional income among poor farmers and small-scale rural entrepreneurs (GBP).	87,800,370	112,184,546	128%
Amount of investment leveraged through market players and key actors (GBP).	49,654,214	87,989,468	177%
Number of partners and market actors that invest in pro-poor innovations that the programme helps to pilot.	86	133	155%
Number of actors or organisations that have been supported or influenced by the programme.	26	57	219%
Number of regulatory changes, policy reforms, or release of funds by state and federal government to facilitate activities that is supported by the programme.	19	22	116%

6.4 Value for Money for the Legacy Phase

At the end of the Legacy Phase (March 2018), Propcom had an operational cost ratio of 33%, down from 41% at the beginning of the programme. This shows that the cost of overheads and other operational expenses has gradually gone down over the years. The cost of reaching farmers, however, has gradually gone up over time. This can partly be explained by the fact that at the beginning of the programme, some interventions which had been carried forward from Propcom 1 bore results quickly while costs were still quite low at that stage. This ratio started to increase as the programme implementation costs started to go up. The same is true for C1a, except that the ratio was higher due to a conversion rate of just 65% from access to beneficiaries.

The proportion of female farmers reached (B1b) at the end of the programme stood at just over 20%, far below the target of 50%. Reasons for this have been explained previously. The same applies for C1b. The beneficiary income gain per £ spent stood at £1.20 against a target of £1.90 set in the business case. Many of the new interventions undertaken during this phase had just started to gain traction and had not matured enough to have the breadth and depth of impact required to meet this target. This, however, changed during the Extension phase when these interventions were able to reach scale and higher level of impact.

Propcom fared quite well against private sector investment leveraged which stood at 2.19 at the end of the phase, against a target of just 0.14. The business case target had been set very conservatively against the performance of Phase 1 and Propcom Mai-karfi was quite successful in eliciting private sector investment especially from the Rice Parboiling (WEE Initiatives) and Babban Gona (Access to Finance) interventions.

6.5 Value for Money for the Extension Phase

By the end of the Extension, Propcom offered great value for money; its cost ratios were well below the targets set for the extension period. The ratio of operational cost to total cost (A1) in the final year (Year 4) went up compared to the previous year. This can be explained by the no-cost extension from Apr-Dec 2021 having a higher operational cost (32% in Year 4 versus 27% in Year 3). The no-cost extension focused mostly on consolidation and winding down the programme, which has resulted in higher overheads.

Costs of reaching farmers, both overall (B1a) and in the North East (B1b), went down in the final year. Much of this was driven by the Poultry and Livestock interventions where the cost per farmer reached was just £8.3, followed by the Access to Finance interventions at £16.7. The Agricultural Inputs interventions cost £17.1 to reach one farmer, while Agricultural Mechanisation interventions cost £22.1 per farmer.

50% of the farmers reached in Year 4 were female, and the percentage of female farmers reached cumulatively (B2) has increased to 46.4%, up from 45.8% the year before. This is one of the most significant achievements of the Extension. The costs per farmer reached with improved resilience and benefitted (C1a, C1b, C2a and C2b) have all improved compared to the previous year.

The beneficiary income gain per £ spent (C4) stood at £4.12 in the end which is 3.3 times greater than the target of £1.25. Investment leveraged from the private (C5) sector stood at £2.18 which is 3.6 times greater than the target of £0.60. This is evidence that PM has contributed significantly to reviving rural markets by leveraging investments through its private sector partners. The decrease in C5 compared to the previous year can be explained by the fact that during the no-cost extension Propcom continued with a smaller number of partnerships while not pursuing any new ones. Also, Year 4 covered a period of just nine months (from April to December), as opposed to a full programme year from April to March.

Overall, Propcom has performed well during the Extension, having exceeded all its targets and remaining well below its cost projections.

Table 11: Value for Money Indicators for the Legacy Phase

VFM Dimension	Ref #	VFM Indicator	2013	2014	2015	2016	2017	Mar 2018
Economy	**A1**	Total operational costs/total costs.	41.1%	39.5%	37.9%	34.4%	32.6%	**32.6%**
Efficiency	**B1a**	Cost per farmer/small scale rural entrepreneur reached through inputs, services or technology.	£16.30	£20.30	£19.20	£20.60	£21.20	**£21.80**
	B1b	% of farmers reached who are female	21.0%	18.5%	15.4%	17.4%	20.5%	**20.7%**
Effectiveness	**C1a**	Cost per farmer/small scale rural entrepreneur benefitted.	£22.60	£31.60	£33.30	£35.30	£32.90	**£33.80**
	C1b	Cost per ***female*** farmer/small scale rural entrepreneur benefitted.	15.2%	14.8%	12.9%	17.5%	21.6%	**21.9%**
	C2	Beneficiary income gain per £ spent.	£0.20	£0.34	£0.77	£1.01	£1.24	**£1.20**
	C3	Private sector investment leveraged per £ spent.	£0.14	£0.60	£1.27	£1.72	£2.26	**£2.19**

Table 12: Value for Money Indicators for the Extension Phase

VFM Dimension	Ref #	VFM Indicator	Target	Year 1*	Year 2*	Year 3*	Year 4*
Economy	**A1**	Total operational costs/total costs	30.0%	36.1%	31.6%	29.5%	**29.8%**
Efficiency	**B1a**	Cost per farmer/small scale rural entrepreneur reached through inputs, services or technology	£37.00	£8.90	£18.60	£20.60	**£19.70**
	B1b	Cost per farmer/small scale rural entrepreneur reached through inputs, services or technology in the **NE**	£51.00	£15.90	£30.80	£30.50	**£29.20**
	B2	% of farmers reached who are ***female***	30.0%	35.2%	44.1%	45.8%	**46.4%**
Effectiveness	**C1a**	Cost per farmer reached with improved resilience	£49.00	£9.90	£20.10	£22.40	**£21.30**
	C1b	Cost per farmer reached with improved resilience in the **NE**	£61.00	£16.90	£33.00	£33.10	**£31.40**
	C2a	Cost per farmer/small scale rural entrepreneur benefitted	£49.00	£10.10	£20.70	£25.30	**£24.40**
	C2b	Cost per farmer/small scale rural entrepreneur benefitted in the **NE**	£61.00	£17.20	£34.10	£39.00	**£37.80**
	C3	% of farmers benefitted who are ***female***	30.0%	36.2%	44.1%	47.9%	**48.8%**
	C4	Beneficiary income gain per £ spent	£1.25	£10.35	£4.96	£3.66	**£4.12**
	C5	Private sector investment leveraged per £ spent	£0.60	£4.88	£1.82	£2.31	**£2.18**

Note: * Year 1: April 2018 – March 2019; Year 2: April 2019 – March 2020; Year 3: April 2020 – March 2021; Year 4: Apr 2021 – December 2020

In line with FCDO direction, expenditure in the KKJ states decreased in relation to the North-East states as a proportion of total expenditure. Table 13, below, shows that proportion of total expenditure in the KKJ states decreased from 60% to 15% over the Extension Phase. Over the same period, the proportion of beneficiaries recording net additional income change as a result of programme activities (see Outcome Indicator 1.1a in Table 7) in the KKJ states remained fairly constant at around 35%. This indicates a positive residual effect of Propcom interventions and a strong indication of sustainability as the programme withdrew.

Table 13: Comparison of Expenditure and Results between KKJ states and the North-East

Expenditure				
Year	**North East**	**%**	**KKJ**	**%**
Year 1	£860,515	39.80%	£1,299,212	60.20%
Year 2	£3,972,021	59.00%	£2,759,057	41.00%
Year 3	£5,067,621	71.50%	£2,020,577	28.50%
Year 4	£1,626,676	85.40%	£277,891	14.60%
Income Results[13]				
	North East	**%**	**KKJ**	**%**
Year 1	125,901	64.80%	68,264	35.20%
Year 2	134,532	62.50%	80,888	37.50%
Year 3	149,018	74.00%	52,458	26.00%
Year 4	63,864	62.40%	38,490	37.60%

6.6 Combined Value for Money

Owing to the differences between the two phases, only the following indicators are common across them both:

- Total operational costs /total costs
- Cost per farmer reached
- % of farmers reached who are female
- Cost per farmer benefitted

[13] Note that results here do not include those from the Transition States (states that were part of the Legacy Phase but not part of the Extension Phase) which numbered 19,828.

- % of farmers benefitted who are female
- Beneficiary income gain per £ spent
- Private sector investment leveraged per £ spent

Table 14: Combined Value for Money Indicators for Propcom Mai-karfi

Indicator	Legacy	Extension	Overall
Total operational costs /total costs	32.6%	29.8% ▼	31.3%
Cost per farmer reached	£21.80	£19.70 ▼	£20.80
% of farmers reached who are female	20.7%	46.4% ▲	32.7%
Cost per farmer benefitted	£33.80	£24.40 ▼	£28.80
% of farmers benefitted who are female	21.9%	48.8% ▲	36.0%
Beneficiary income gain per £ spent	£1.20	£4.77 ▲	£2.79
Private sector investment leveraged per £ spent	£2.19	£2.18 —	£2.18

As can be seen from the table above, the Extension Phase has performed considerably better than the Legacy Phase on almost every single metric. This can partly be attributed to the fact that the Extension Phase has built upon the successes of the Legacy Phase and had already gained valuable traction and leverage in some key markets/interventions when it started. Only the investment leverage ratio has remained the same between the two phases.

7 Resources

7.1 Partners

The Propcom Mai-Karfi Programme was awarded to a consortium led by GRM International. The consortium comprised GRM International[14], the Springfield Centre, Technoserve and Women in Sustainable Economic (WISE) Development[15].

Springfield Centre provided specific technical direction with respect to M4P approaches and supported business case design, management and results measurement. Technoserve provided technical staff for key positions within the programme, and support to PM to identify and implement suitable and relevant interventions. WISE Development had responsibility for the provision of technical advice on gender and women's economic empowerment.

PM's *modus operandi* revolved around interactions with private sector and non-governmental organisations (NGOs). By facilitating existing market actors, higher levels of sustainability should be assured. Identification of the most appropriate market actors is a fundamental success criterion. PM also partnered with other development agencies with similar developmental goals. The partnership with Action Against Hunger (AAH), for example, focused on satisfying the nutritional needs of target beneficiaries and raising income from sales of excess produce; the FAO leveraged the Veterinary Council of Nigeria to promote the Community Animal Health Worker Programme; and GIZ adopted the poultry production and marketing interventions and replicated the SSP model.

During the Extension Phase, PM targeted major international NGOs and humanitarian agencies as key players in rural and agricultural markets – operating in roles vacated by the private sector during the insurgency. These organisations played pivotal roles in addressing the acute needs of crisis-affected populations, but PM identified these agencies as potential partners to develop interventions to transition communities for relief to engaging in functioning markets. Partners included the International Committee of the Red Cross (ICRC), Action Against Hunger, MercyCorps, CRS, the World Food Programme and FAO.

7.2 Financial and human resources

Table 15 summarises the expenditure made by Palladium International in implementation of their contract up to and including November 2021.

[14] The GRM Futures Group merged with the Palladium Group and HK Logistics, dTS and CARANA Corporation to become Palladium in 2015.
[15] WISE Development was subsequently acquired by DAI International.

Table 15: PM expenditure in relation to Contract Amendment 14

Budget lines	CA14 Budget	Spend (up to November 2021)	Variance	%
Milestones	£7,648,370	£7,523,371	-£125,000	-1.6%
Fees	£19,508,562	£19,463,980	-£44,582	-0.2%
Fares	£858,109	£840,361	-£17,748	-2.1%
Living Costs	£3,034,072	£3,013,621	-£20,451	-0.7%
Equipment	£2,806,064	£2,796,381	-£9,683	-0.3%
Other expenses	£10,320,132	£10,321,482	£1,351	0.0%
Total	**£44,175,309**	**£43,959,196**	**-£216,113**	**-0.49%**

Annex I lists all staff employed on PM during its lifetime. To gain an understanding of staff balance, level of effort and actual expenditure on staff categories has been calculated for the Extension Phase only (see Table 15). Summing expenditure by category (see Table 16) shows that 80% of expenditure was on implementing staff and 20% on project management. Of that 80%, 63% is Technical staff, 14% Results Management staff and 4% on Security staff.

Table 16: Level of Effort and expenditure on staff categories (Extension Phase only)

Staff categories	Actual LoE	Actual spend (£)
Frontline Delivery Staff (milestone based)		
Technical	19,116	£ 6,808,136
Long Term Project Management Staff (input based)		
Results Management	4,698	£ 1,636,857
Programme Management	7,711	£ 1,565,910
Short Term Personnel (input based)		
Security	1,243	£ 460,471
Technical	337	£ 238,171
Palladium Management (input based)		
Technical	234	£ 102,850
Results Management	27	£ 13,156
Programme Management	1,495	£ 589,104
Total	**34,861**	**£ 11,414,654**

Table 17: Proportion of staff allocation by category (Extension Phase only)

Staff category	LoE	%	Actual spend	%
Technical	19,687	56%	£ 7,149,157	63%
Results Management	4,725	14%	£ 1,650,013	14%
Programme Management	9,206	26%	£ 2,155,014	19%
Security	1,242	4%	£ 460,471	4%
Total	**34,862**	**100%**	**£ 11,414,654**	**100%**

8 Lessons Learned

In its nearly 10 years of implementation, Propcom Mai-karfi has generated many key insights and useful lessons that other M4P programmes, in Nigeria and similar contexts elsewhere, can both learn and benefit from. Although these have been documented separately, this section summarises the key lessons learned in the course of implementing this programme.

8.1 A Market Systems approach in thin and conflict affected markets

Engaging the Private Sector – in an environment where both public and private sector actors are familiar with direct delivery donor initiatives, it takes time and patience to onboard intervention partners who are willing to engage with a market systems approach, where they are required to alter their usual approach to engaging in the relevant value chain and embrace risk to reach new markets with goods and services.

Working with other donor programmes – the assumption that an M4P/ MSD programme could leverage on the footprint of acute humanitarian organisations to identify potential beneficiary groups was flawed. The funded objectives of such entities, such as ICRC and Action against Hunger, are sufficiently different to those of a market engagement programme to render collaboration difficult. However, it proved very possible to work with other livelihoods programmes, for example GIZ, where there was some synergy with respect to available tools and resources, and outcomes. Therefore, mapping the presence of other donor funded initiatives in thin markets is a vital early tool in determining where best to achieve impact.

Stimulating value chain activity in very thin markets – Propcom Mai-karfi lobbied for significant grant funds as part of its extension portfolio to work in the Northeast, on the assumption that value chain activity would be sufficiently moribund as to require direct support before any market systems facilitation could take place. In reality, with the exception of the highly unstable regions of Borno, N Yobe, and parts of Adamawa where active conflict was taking place, market actors were either strongly present on ground, or represented though acting remotely, and actively engaged in delivery of both goods and services. Therefore, a conventional facilitation approach was more relevant and successful than at first thought.

8.2 Achieving sustainability and legacy

The M4P 'hockey stick effect' takes time – achieving sufficient momentum for change in a value chain through a facilitation approach takes time, often more time than a typical M4P/MSD programme is given. This is evidenced by the scaling, copying and crowding in witnessed only at the latter stages of the extension period in the poultry health and mechanization work of Propcom Mai-karfi. By then the programme had been running for around 7 years since inception, with these value chain initiatives being early components of the workstream. Without an Extension Phase, such transformational changes seen by the end of the programme may have lost momentum and withered.

Logframe vs lasting change – pressure to deliver to a series of indicators that are not well aligned with a patient facilitation approach can distort activity and lead to a drive for beneficiary numbers earlier in the programme lifecycle than should be the case. Behavioural change by both private sector and beneficiaries can appear to be delivered if the programme becomes a key link in the value chain, through subsidy and taking some of the roles that should sit with the private sector and other partners. This approach can deliver short term impact, but this is at risk of fading away once the programme steps out. Propcom Mai-karfi's work with CBOs in aggregating particularly women farmers offtake bears witness to this, when soft loans to create liquidity for the CBOs drove activity, which then dwindled as the programme stepped out.

Change champions need to embed in partner entities – engaging with individuals in partner organisations to drive change is a high-risk strategy, as such activity is likely to be abandoned if that individual moves on, as witnessed with a soap and handwash intervention early in the life of the programme. It is more sustainable to work with an organization that has accepted the need to engage at a group level, not leaving the engagement to an individual to drive.

8.3 Impact of changing geographical and target beneficiary groups

Moving from 19 states to 9 – in 2018 Propcom Mai-karfi exited from activities in 10 states across Northern Nigeria to focus only on the 6 states in the NE and 3 DFID partner states in the North Central area. Being a programme seeking quality private sector entities to partner with, imposing a geographical restriction after nearly 6 years of activity necessarily meant the abandonment of activities and relationships which had shown promise. This was managed well but inevitably left a legacy of reduced impact, and consequently value for money, in some areas of programme output. It would have been more effective to have more gradually phased out work in the 10 states, but the programme needed to respond rapidly to the donor focusing on a refreshed agenda built around conflict response.

Taking the programme to IDPs and host communities – in the latter stages of the extension period, emphasis moved to mostly working with communities marginalized by conflict. This was a challenge for an M4P/MSD more used to identifying target beneficiary groups which had greater apparent potential to engage with private sector led initiatives. However, as stated previously, markets were active in these communities, and therefore a facilitation approach was possible, albeit with some greater requirement for direct subsidy of assets such as inputs to stimulate market activity/

8.4 Climate Smart Approaches

Embedding Climate Smart principles early in intervention design – though a climate smart agenda had been part of the programme's agenda from early in its lifecycle, Propcom Mai-karfi was slow to understand how this could be delivered, and slow to incorporate climate smart components into intervention design. In fairness, climate smart indicators are broad and most of the programme's work could be said to have some adherence to the principles of climate change mitigation, through increasing productivity and therefore resilience to climate shock. However, only in the latter years of the workstream were pilot interventions designed and delivered to specifically showcase livelihood enhancing activities that also addressed this agenda

Climate Smart Technology requires a long view by investors – as evidenced by the work with solar driers and solar irrigation pumps, the adoption of climate smart technology requires an acceptance of longer timescales for return on investment, as, though operating costs of such equipment are low, initial purchase costs are generally significantly higher than conventional equipment. This is hard to sell to value chain actors who, in an economically and often politically fragile environment, are unwilling to accept long term risk and seek only short-term gain. Additionally, it is difficult to have a conversation about climate change mitigation with poor smallholder farmers who, despite being aware of the change in the environment already occurring, have more immediate demands on them to deliver food and services for their families.

8.5 Impact of changing external factors

A dynamic and deteriorating security situation requires adaptive working practices – both within the NE states, and latterly across most of the programme area of activity, the rule of law, and consequently the ability of communities to undertake their day-to-day tasks, became more compromised. Areas where intervention activity, particularly around seasonal crop production, had been apparently predictable and practical, became inaccessible to programme staff. Additionally, some farming activity became too dangerous, and some intervention work had to be suspended. It is difficult to predict such changes, but Propcom Mai-karfi was largely able to rapidly respond by altering approach, using local and remote resource, and a clear lesson from this was the need for reliable field intelligence of the security picture in order to maintain delivery momentum, and keep staff safe.

A weakening national economy impacts on the success of interventions– where interventions were dependent on equipment or infrastructure that was imported, a weakening currency and importation restrictions weakened the viability of models including tractor hiring and solar powered small equipment usage. Again, this is by definition difficult to predict or mitigate against, though programme lobbying on importation tariffs did contribute to some easing of equipment costs.

Covid-19 pandemic – this needs little explanation that is programme specific, as the impact of the pandemic was generally common across many sectors and economies. The necessary restriction on movement reduced trading and also severely impacted the ability of the programme to monitor directly activities in the field. However, a rapid schedule of mitigation measures was successfully activated, the lesson being that a programme can find ways to circumvent many challenges if it is adaptive and responsive, rather than being set on a particular and unmovable delivery process.

8.6 Incorporating a Gender Empowerment approach

Ensuring that a gender lens is used at intervention design stage is crucial for success – trying to retrofit a need to reach women, and people with disability, with livelihood improving initiatives is destined to fail. Private sector companies will not see any reason to incorporate marginalized groups in their economic model unless the approach advocates for their inclusion at an early stage through highlighting their particular advantages as agents for change. For example, interventions around the delivery of vaccines for poultry necessarily required the training of women vaccinators as they had unique access to households where women were the key managers of poultry flocks. Also, engaging microfinance institutions to offer loans to women required evidence that they were, in fact, more reliable as managers of debt than the traditional male recipients of access to finance initiatives.

Designing gender specific interventions has value as proofs of concept to others – specifically targeting women and women groups with pilot interventions can show to a wider audience that they can be part of a mainstream economic opportunity for the private sector.

8.7 Digital Platforms and Mass Audience Broadcasting require a sustainable funding model

Radio is a sustainable model for access to information if the broadcaster designs user and sponsor friendly output – Propcom Mai-karfi worked to capacity build broadcasters in the NE to deliver relevant and interactive programme content. This attracted sponsors from the private sector to advertise alongside the content. Reaching over 3 million listeners with timely agronomic content demonstrated the success of this, particularly for hard-to-reach communities and in response to Covid-19 restrictions.

Farmers do not pay for information through digital e-information platforms - the programme supported the provision of high-quality content for farmer e-platforms and a platform, VetWiz, used by community animal health workers. However, a subscription model for farmers proved to have weak take up, the learning being that the end user expects not to pay for content, rather that such content is paid for by third party sponsorship.

8.8 Align programme data collection requirements with partner's ability to deliver

M4P/MSD programmes benefit from using a dynamic monitoring system to guide decision making Propcom Mai-Karfi at the beginning assumed that private-sector partners would provide all the necessary data required for result measurements and related information. It was a wrong assumption as it was soon discovered that businesses were only interested in two sets of data – expenditure and income, to determine profitability, and not programme result measurement focused data for development interventions. In response to this Propcom Mai-karfi built a dynamic adaptive monitoring system to guide interventions, provide up-to-date information internally for Senior Management decision making, as well as to inform partners of emerging issues and economic data in the field. This led to regular data collection alongside intervention activities and increased the potential for using timely information that suits private sector windows of opportunity.