



**Food and Agriculture
Organization of the
United Nations**

**INVESTMENT ANALYSIS
FOR INSTITUTIONAL
PROCUREMENT**

PURCHASE FOR PROGRESS

**COUNTRY CASE STUDY:
MALI**

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MALI

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FOREWORD

Purchase for Progress (P4P), a World Food Programme (WFP) pilot launched in 2008, aims to leverage smallholder agricultural growth in some of the world's poorest countries through supply chain reforms. P4P links WFP's demand for staple foods with the expertise of partners working to strengthen the capacity of smallholder farmers to produce more and higher-quality food, reduce post-harvest losses, access markets and fetch a fair price for their surplus crops. P4P tests and institutionalizes different food procurement models and related programmatic approaches that sustainably promote smallholder agricultural and market development.

At WFP's request, the FAO Investment Centre conducted an investment analysis of the P4P initiative in four countries: Malawi, Mali, Tanzania and El Salvador. The FAO team, which included Alexander Jones, a former senior programme development officer, and economists Lisa Paglietti, Roble Sabrie, Luis DiasPereira and Wadzi Katsande, combined desk reviews with field visits and consultations with the P4P Coordination Unit in Rome and stakeholders at country level.

ACKNOWLEDGEMENTS

FAO Investment Centre economists Luis DiasPereira, Wadzi Katsande, Lisa Paglietti and Roble Sabrie were the main authors of the study, with Lisa Paglietti coordinating the study team.

The team is grateful to the P4P Coordination Unit, which led the preparation of the concept, scope and funding for the study, and WFP staff at country level for participating in meetings and sharing documentation.

Special thanks go to Alberta Mascaretti, service chief, Africa Service, Astrid Agostini, senior economist, FAO Investment Centre, Siobhan Kelly, Jorge Fonseca, and Natalie Vergara, agribusiness officers, FAO Rural Infrastructure and Agro-industry Division who reviewed earlier drafts of the report. Their constructive comments were helpful during the revision process.

The team also acknowledges the contributions of other stakeholders in Mali, Malawi, El Salvador and Tanzania, including from local government, the private sector, non-governmental organizations, farmers and farmer associations, who all willingly and openly shared their expertise, opinions and data, without which this study would not have been possible.

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ACRONYMS AND ABBREVIATIONS

DAP	Delivery at place
EMOP	Emergency Operations
EXW	Ex-warehouse
FAO	Food and Agriculture Organization of the United Nations
FDC	Forward delivery contract
FO	Farmer organization
IFI	International financial institution
LRP	Local and regional procurement
M&E	Monitoring and evaluation
ODI	Overseas Development Institute
OMA	<i>Observatoire du Marché Agricole</i>
OPAM	<i>l'Office des Produits Agricoles du Mali</i>
P4P	Purchase for Progress
PICS	Purdue Improved Cowpea Storage
PRSP	Poverty Reduction Strategy Paper
USDA	United States Department of Agriculture
WFP	World Food Programme

INTRODUCTION

Mali was identified as one of the four country¹ case studies during the consultation phase. The objective of this country study was to investigate the main benefits arising from the Mali Purchase for Progress (P4P) initiative and its impact on beneficiaries, in particular those not documented by the programme's monitoring and evaluation (M&E) system.

Methodology. The decision was made to focus the analysis on the period from 2009 to 2012, in accordance with the methodology, time constraints and heterogeneity of the data.² The analysis was based on a review of official procurement data (including quantities purchased, price paid to farmer) and consolidated secondary information such as data from the M&E officers, financial service group records and logistics. It was complemented by primary information/data on the P4P initiative gathered during fieldwork in Mali, particularly during discussions with farmer organizations (FOs). Whenever possible, both quantitative and qualitative data were gathered during the interviews. The quantitative data included production costs reported by farmers. The qualitative data were used to understand the objectives, risks and constraints that underlay the quantitative data. When official quantitative data were not readily available, proxies and estimations based on anecdotal field findings and discussions with World Food Programme (WFP) officials were used.

Field visits. The in-country work was carried out in January 2014. Five of the 11 FOs participating in the P4P scheme (producing sorghum, millet and beans) were visited in two of the four active regions: Koulikoro and Ségou (Mopti and Sikasso were not visited). The interview tools used during fieldwork comprised focus group discussions,

informal discussions and key informant interviews (one-to-one or groups). A questionnaire was developed and shared with the stakeholders to facilitate the group discussions (Annex 3).

FOs working with WFP can be divided into two categories: well-structured and less structured. Well-structured FOs have salaried staff.³ The latter category of FOs relies on volunteers from their members to run their affairs and undertake particular tasks as necessary. Two of the five FOs met during the field visits belong to the first category: *Faso Jigi* in Segou, and *Union des Sociétés Coopératives de Maïs de Diédougou* in Beleko. The other three FOs are less structured, although they made progress during project implementation.

The team carried out the following:

- Interviews with P4P participating farmers to gather data on the experiences and responses of the target groups. WFP in Mali buys commodities from FOs that are both cooperatives and unions of cooperatives; and
- Key informant interviews with four service providers regarding their capacity building activities. The interviews were technical meetings aimed at gathering the service providers' views on the benefits of P4P and the challenges faced by participating farmers in engaging with a market player such as WFP.

1 The four countries selected were: El Salvador, Malawi, Mali and Tanzania.

2 For example, the introduction of WINGS2 and 2008 start-up costs were not quantified as they were not budgeted as such.

3 In addition to P4P procurements, they have secured other institutional and/or private markets, and operated guarantee systems through which they made available a percentage of the value of cereals deposited in their warehouses during the harvest to their members to help them offset debt and other obligations. This was intended to discourage farmers from selling their grain when the price was at its lowest. A percentage of proceeds from stored grains was returned to farmers after sale, with a portion going to the organization. This provided them with financial liquidity and an increased capacity to continue their operations. They have also each set up an incentive system to reward their most deserving producers and motivate other members to improve their operations and harvest results (USDA-Mali Report 2011).

Caveats of country study. First, the study did not seek to evaluate the overall P4P programme but rather focus on a specific subset of costs and benefits, including externalities not analysed in the mid-term review or in other studies. The main limitations were unavailable data on the number of farmers participating who actually sell to P4P, and a representative farm size of participating farmers (needed to estimate the overall number of beneficiaries and the impact of the initiative at household level). As previously highlighted, the available data were not homogenous and it would not be possible to fill this gap through a qualitative study of this size. To partially overcome these limitations, the study used quantitative methods combined with qualitative research, where appropriate, to build on the information available.

The combination of quantitative and qualitative information may provide some foundation for reasonably attributing overall changes to P4P. It is important, however, to note that attributing benefits to a programme is a complex activity and difficult to fully achieve, particularly if baseline data were not available at programme start-up.

This paper includes the following chapters:

- Chapter 1 presents some country highlights on WFP activities and the P4P intervention.
- Chapter 2 outlines an analysis of the costs of P4P activities.
- Chapter 3 describes the quantitative analysis of benefits at farmer level as well as a qualitative analysis where figures and data were not available or numeric modelling was not appropriate.
- Chapter 4 develops some financial models to provide further insight into the P4P benefits and sustainability.
- Chapter 5 summarizes key findings and conclusions.

Country Highlights on WFP Activities and the P4P Intervention

WFP has been active in Mali since 1964, supporting vulnerable people in the country to preserve livelihoods and to cope with drought and other natural disasters. Activities are designed to improve the health and nutrition of vulnerable children and increase the food security of poor households. WFP's current main operations are under the Country Programme and the Emergency Operations (EMOP).⁴

In line with the Government's Poverty Reduction Strategy Paper (PRSP), the Country Programme has five components that contribute to: (i) increasing school enrolment and attendance through school feeding; (ii) enhancing resilience to natural disasters among vulnerable food-insecure rural communities; (iii) improving Mali's food security system by supporting the Government's structures; (iv) providing targeted supplementary feeding for children aged 6–59 months affected by moderate acute malnutrition, and for malnourished pregnant and lactating women; and (v) urban cash-for-work activities to increase vulnerable households' access to food.

Under the EMOP, WFP aims to reach internally displaced people, host families and fragile communities affected by the political crisis in Mali, but also displaced households and fragile host families in the south who were hit hard by the 2012 Sahel drought. Assistance is provided through: (i) targeted food and cash assistance; (ii) blanket supplementary feeding to prevent acute malnutrition; (iii) targeted supplementary feeding to treat moderate acute malnutrition; and (iv) emergency school feeding.

WFP is also working to connect Malian farmers to markets through the P4P initiative, which aims to reinforce the capacities of smallholder farmers to improve procurement practices, food

processing and commercialization as a means to increase their incomes. P4P seeks to enable small farmers to become competitive cereal suppliers on local and regional markets. This will realign the way WFP buys food to better address the root causes of hunger.

Table 1 compares WFP's standard local and regional procurement (LRP) and P4P procurement requirements and mechanisms. Four specific procurement modalities are available for use in P4P in Mali:

- **Soft tendering** is a type of adapted competitive tender that is less strict than the usual competitive tender process applied to large traders. Soft tenders, for example, waive performance bonds (sureties), generally waive bag markings and involve smaller tender sizes. Farmer cooperatives bid against each other for a P4P tender. Those with the most competitive prices win the tender and a contract is then drawn up. Soft tendering retains all the transparency and cost-efficiency characteristics of the regular competitive tendering process.
- **Direct contracting** entails a non-competitive procurement process, based on confirmed available food in the FO stocks; WFP negotiates directly with a single supplier to determine a purchase price and other contract terms. On occasion, WFP used direct contracts before P4P, such as when it needed to procure food on short notice.

⁴ WFP Web site

Table 1: Comparison of Standard LRP and P4P Food Procurement Requirements

	Standard LRP	P4P
Suppliers	Pre-qualified suppliers (mostly larger traders)	Pre-qualified smallholder FOs and small and medium traders
Contracting mechanisms	Competitive tenders	<ul style="list-style-type: none"> • Competitive tenders • Modified competitive tenders (see contract terms below) • Direct contracts • Forward contracts • Commodity exchanges • Purchasing through warehouse receipt systems • Developing links with food processors
Procurement requirements		
Price	Determined by authorized contracting mechanisms but not to exceed import parity	Determined by authorized contracting mechanisms but not to exceed import parity
Quantities	Preference for relatively large quantities	Will consider much smaller quantities to accommodate suppliers' capacities
Performance bond	5 – 10%	None
Quality	WFP standards (or relevant country standards)	WFP standards (or relevant country standards)
Bagging	Bagged in 50 kg bags and marked with WFP logo	Flexible
Delivery terms	Delivered duty unpaid to specified destination (usually WFP warehouse) on specified date	Flexible

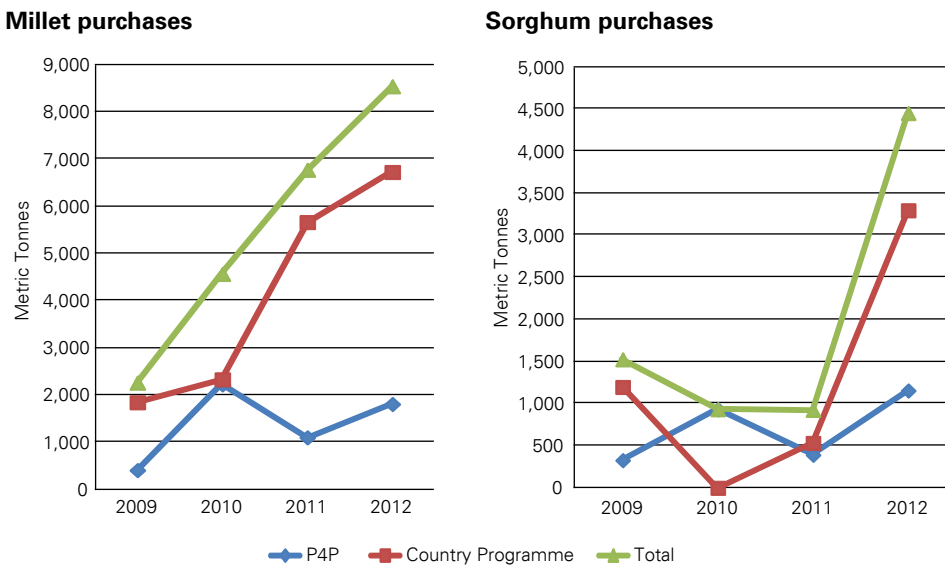
Source: WFP headquarters, Rome.

- **Forward delivery contracts (FDC)** are another non-competitive procurement modality, which WFP is testing for the first time through P4P. From WFP's perspective, FDCs are signed at planting or harvest time, to assure the FOs of WFP's commitment to purchase once the commodity is aggregated and stored in their warehouse. FDCs include a minimum price guarantee and the stipulation to adapt prices against market prices during the time of delivery. If market prices increase by the time of delivery, WFP will pay the re-negotiated price. With FDCs, some FOs are able to mobilize inputs from suppliers or credit from financial institutions. This procurement option is intended to reduce farmers' risk and create greater certainty for farmers in their planning.

In Mali, the P4P has purchased mostly through forward contracting and direct contracting modalities.

Currently, P4P is engaged with around 10 000 farmers registered in 11 FOs, both cooperatives and unions of cooperatives operating in the country's southern regions. P4P also engages farmers in training on a number of topics such as leadership and good governance, production and productivity, basic business management, warehouse management skills and post-harvest management. Overall, close to 3 000 farmers have been trained under the programme. The investment cost in capacity building is USD 0.25 million, which translates to approximately USD 80 per farmer.

Table 2 and Figure 1 present the purchasing values, quantities and trends over the period under analysis for P4P, the regular Country Programme (which excludes P4P purchases) and the total purchase (regular country purchases plus P4P purchases), respectively. During the period under analysis, P4P activities represented

Figure 1: Trends of P4P regular overall purchases by WFP in Mali for Mali consumption

Source: Author's compilation from official WFP purchasing data.

34 percent of the total food purchases in volume terms and 35 percent of WFP procurement for Mali's needs in USD value terms (TP column in Table 2).⁵ Table 2 indicates that the P4P represented an important share of the total purchase, both in terms of financial values and physical acquisition of goods. The acquisition trends over the years are better explained by Figure 1. Over time, P4P acquisition trends followed the overall Country Programme purchases, driven by emergencies for millet, sorghum and beans.

The three crops represent 60 percent of the regular purchases over the period under investigation. Their trends show that P4P in Mali has been a regular and steady source of procurement since programme inception. The rice purchases only started in 2012 and the period of reference is too short to analyse any trend or evolution over time.

⁵ Furthermore these figures are above the P4P procurement targets agreed at the beginning of the P4P in the pilot countries.

Table 2: Commodity Purchases (2009-2012)

P4P PURCHASES			STANDARD LOCAL PURCHASES				TOTAL LOCAL PURCHASES (TP)			
YEAR	Tonne	USD tonne	VALUE (USD)	YEAR	Tonne	USD tonne	VALUE (USD)	YEAR	USD tonne	VALUE (USD)
Millet										
2009	415	325	148 945	2009	1 854	412	748 514	2009	2 269	897 460
2010	2 234	347	772 095	2010	2 340	343	780 795	2010	4 574	780 795
2011	1 110	430	470 014	2011	5 673	378	2 173 167	2011	6 783	2 643 180
2012	1 816	398	782 310	2012	6 734	512	3 390 926	2012	8 550	4 173 236
Total	5 575		2 173 364	Total	16 601		7 093 402	8 042	22 175	8 494 671
Sorghum										
2009	328	235	114 966	2009	1 199	339	397 004	2009	1 527	511 969
2010	934	327	274 206	2010	0	0	0	2010	934	274 206
2011	392	399	166 621	2011	534	415	206 911	2011	926	373 532
2012	1 157	411	474 001	2012	3 300	429	1 435 979	2012	4 457	1 909 980
Total	2 811		1 029 794	Total	5 033		2 039 894	Total	7 844	3 069 687
Beans										
2009			-	2009				2009		
2010	49	685	33 600	2010	97	659	63 832	2010	146	97 432
2011	53	927	51 100	2011	45	779	35 049	2011	98	86 149
2012	115	748	89 863	2012	0	0	0	2012	115	89 863
Total	217		174 563	Total	142		98 881	Total	359	273 444
Rice (paddy)										
2009			-	2009				2009		
2010			-	2010				2010		
2011	1 080	447	482 958	2011				2011	1 080	482 958
2012	1 000	544	544 461	2012				2012	1 000	544 461
Total	2 080		1 027 419	Total				Total	2 080	1 027 419
Rice (white)										
2009			-	2009				2009		
2010			-	2010				2010		
2011			-	2011				2011		
2012	1 657	741	1 229 766	2012				2012	1 657	1 229 766
Total	1 657		1 229 766	Total				Total	1 657	1 229 766
Maize flour										
2009				2009				2009		
2010				2010				2010		
2011				2011	531	557	295 652	2011	531	295 652
2012				2012	1 181	653	769 834	2012	1 181	769 834
Total				Total	1 712		1 065 486	Total	1 712	1 065 486
Maize										
2009				2009				2009		
2010				2010				2010		
2011				2011				2011		
2012				2012	130	490	63 657	2012	130	63 657
Total				Total	130		63 657	Total	130	63 657
TOTAL	12 340		5 634 906	TOTAL	23 618		10 361 320	TOTAL	35 957	15 224 130

Source: Author's compilation from official purchasing data.

The overall cost of P4P (excluding procurement of goods) during the period under analysis was USD 2.9 million, which was spent on: personnel, travel, consultants, supplies, contracted services, subgrants to other organizations and equipment (see breakdown in Annex 2). For the purpose of this analysis, these categories were aggregated as follows:

- Start-up costs
- Recurrent costs
- Procurement costs
- Other costs

Start-up costs normally include the costs incurred during the first year to launch a project. The P4P budget was prepared for the entire five-year period with no breakdown between the initial start-up and running costs. Some of the initial start-up costs (around USD 0.9 million) targeting the coordination and worldwide assessment of the overall programme were reported and financed through the Bill and Melinda Gates Foundation interim fund. For this exercise, it was not possible to specifically identify the start-up costs for the Mali initiative.

Recurrent costs account for USD 2.2 million and include staffing costs (six full-time staff and one partially allocated to P4P Mali who is covering other countries as well) and country unit running costs (personnel, travel, consultants and supplies). As shown in Table 3, P4P activities do not benefit from additional staff support from the Mali country office, excluding the management role and support (e.g. country director).

Procurement costs are easily available through the purchase transaction records of the P4P, broken down by individual purchase order. As this is auditable financial data, it is accurate and reliable. Aggregated records provide information on dates of order and purchase, commodity type, volumes and defaults. In this analysis, procurement costs are those costs directly related to commodity purchases. P4P in Mali concentrates its purchases on millet, sorghum and beans. In 2011 and 2012, rice was introduced. Table 4 summarizes the

costs, unit prices per tonne and quantities of the commodities purchased during the period under investigation. Generally, P4P adheres to the WFP procurement principle of cost-efficiency by ensuring that P4P purchases compare favourably to the cost of imported and local food; however, the USD/tonne purchasing values do not provide the real purchasing costs for WFP under the P4P scheme. An in-depth analysis of procurement contracts and delivery modalities was undertaken and illustrated in the next paragraphs.

Procurement was undertaken through different contract typologies that applied different delivery methods and which affected the final prices paid by WFP to farmers. The two types of **delivery methods** currently used to purchase grains and beans include: ex-warehouse (EXW)⁶ and delivery at place (DAP). The differences between the two methods are extremely important for a correct calculation of the final unit price per tonne and for the risk distribution assessment.

- EXW delivery method: WFP collects the produce at the P4P FOs' warehouse. This system relieves the P4P vendor (FOs) of the obligation of arranging transportation and the seller does not bear the delivery risks.⁷ Transportation costs are not included in the final procurement price. Logistics costs needs to be added to the unit price (tonne); this additional unit cost has been estimated at USD 44 per tonne.
- DAP delivery method: P4P FOs are responsible for delivering the grains to WFP's warehouse. The seller bears the costs and risks involved in delivery, and has maximum obligation. Transportation costs are reflected in the final procurement price; in this case the price paid to FOs is greater than the EXW contract, except for the millet price, with the EXW being higher than DAP as shown in Table 5.

6 In Mali the acronym EXW was replaced by FCA; for consistency and comparison, the acronym EXW was used in all four country reports.

7 In terms of loss, damage or any other cost

Table 3: P4P staff and country office staff (2009-2012)

Mali	Time allocated to P4P %
P4P Subregional Coordinator	100*
National P4P Coordinator	100
Procurement Officer	100
M&E Officer	100
Senior Programme Assistant	100
Senior Finance Assistant	100
Procurement Assistant	100
Driver	100

* Prior to 2014, the coordinator's time was allocated 100 percent to P4P Mali, though based at the regional bureau. In 2014, it was 30 percent.

Source: P4P Mali country team.

Table 4: P4P procurement levels (2009-2012)

Year	Tonne	USD tonne	VALUE (USD)
Millet			
2009	415	325	148 945
2010	2 234	347	772 095
2011	1 110	430	470 014
2012	1 816	398	782 310
Total	5 575		2 173 364
Rice (Paddy)			
2009			
2010			
2011	1 080	447	482 958
2012	1 000	544	544 461
Total	2 080		1 027 419
Sorghum			
2009	328	235	114 966
2010	934	327	274 206
2011	392	399	166 621
2012	1 157	411	474 001
Total	2 811		1 029 794
Rice (white)			
2009			
2010			
2011			
2012	1 657	741	1 229 766
Total	1 657		1 229 766
Beans			
2009			
2010	49	685	33 600
2011	53	927	51 100
2012	115	748	89 863
Total	217		174 563
TOTAL	12 340		5 634 906

Source: Author's compilation from official WFP procurement data.

Table 5: Share of the delivery methods in the overall P4P procurement

Year	Delivery	MT	USD/MT	Value	Year	Delivery	MT	USD/MT	Value
Millet					Sorghum				
2009	DAP	397	362	143 795	2009	EXW	82	266	21 805
2010	DAP	847	360	299 341	2010	EXW	827	315	235 714
2011	DAP	480	351	169 683	2011	EXW	232	462	112 845
2012	DAP	1 816	398	782 310	2011				
Total		3 540		1 395 130	Total		1 140		370 364
Sorghum					Rice paddy				
2009	DAP	246	379	93 161	2009				
2010	DAP	107	359	38 492	2010				
2011	DAP	160	336	53 776	2011	EXW	1 080	447	482 958
2012	DAP	1 157	411	474 001	2012	DAP	1 000	544	544 461
Total		1 670		659 430	Total		2 080		1 027 419
Beans					White rice				
2009	EXW		-	-	2009				
2010	EXW	49	685	33 600	2010				
2011	EXW	53	926	51 100	2011				
2012	DAP	115	748	89 863	2012	DAP	1 657	741	1 229 766
Total		217		174 564					
Millet									
2009	EXW	18	289	5 150					
2010	EXW	1 387	335	472 754					
2011	EXW	630	509	300 330					
2012				0					
Total		2 034		778 23					
TOTAL		12 338		5 634 906					

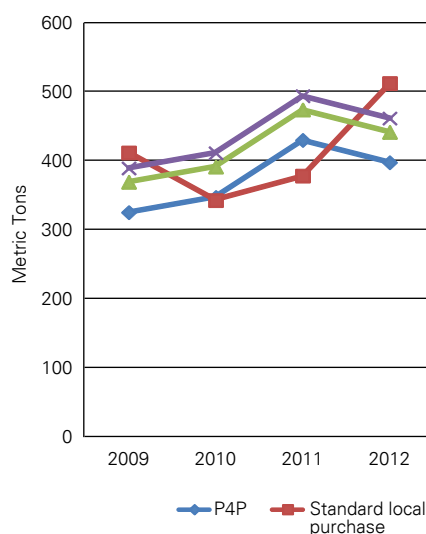
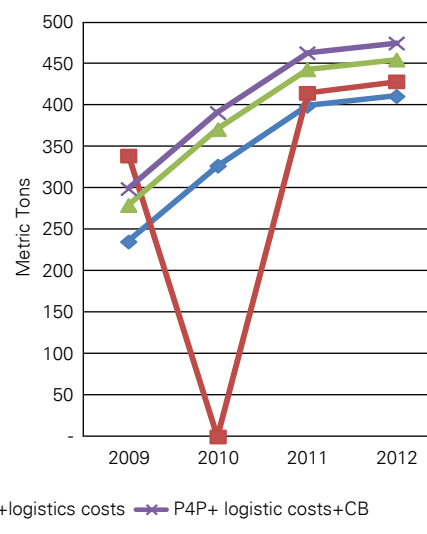
Source: Author's compilation from official WFP Mali purchasing data.

These differences imply important changes to the actual cost in USD per tonne paid by WFP. The logistics costs to implement EXW method were incremental to the regular WFP procurement. To estimate the exact purchasing costs for WFP they need to be added on.

Table 5 highlights the share of the two procurement methods in the overall P4P procurement. The DAP method accounted for almost 65 percent of the quantity purchased by the P4P initiative versus around 35 percent using the EXW method. This implies that the additional logistics costs only applied to 35 percent of the procurement. According to the 2013 signed contracts, a further shift to the DAP method is ongoing and farmers are adapting to it. This shift implies a reduction

in the logistics costs incurred by WFP previously highlighted, and represents an important step in terms of programme sustainability. Despite the predominance of the DAP method, during field visit discussions farmers identified the EXW as their preferred procurement method because WFP bears the transportation risks (once the commodities are loaded onto the truck they are under WFP's responsibility). This indicates that greater prices are not sufficient for inducing farmers to take on more risk. It would be interesting to explore what package would make farmers willing to take on more risks at a reasonable return.

Simulation on purchasing prices shows the adjusted price paid by WFP, taking into account logistics costs. As previously

Figure 2: Price evolution of millet**Figure 3: Price evolution of sorghum**

Source: Official purchasing data and author's simulation.

mentioned, the unit price for the EXW method does not include the average logistics costs (USD 44 per tonne). Bearing this in mind, the USD per tonne unit price purchased through P4P is on average greater than that purchased through the regular programme. Figures 2 and 3 show the adjusted price for millet and sorghum with respect to the different delivery methods. The analysis went a step further, showing that by adding the training costs pro rata per tonne,⁸ the unit price would increase by an additional USD 20 per tonne.⁹ The same figures show the adjusted USD per tonne unit price level for millet and sorghum with the different hypothesis (adding both logistics and capacity building costs to P4P tender costs) with respect to the regular programme.

The analysis of the results highlights the following: purchasing through P4P is not necessarily much more expensive than the standard local purchase and P4P appears to be quite competitive in a number of years. Similarly, P4P appears to be competitive when adopting the DAP modality and not when adopting the EXW modality in the tender. Capacity building costs are expected to decrease over time, making the DAP modality even more competitive. The P4P initiative is, however, at risk if the FOs are

unable to take over the responsibilities without any further support from P4P.

Lastly, the superintendence¹⁰ costs (supervision for quality standards) appear to be greater for P4P purchases. This was only valid for the first years as inspection was combined with training on quality. Regularly recorded/disaggregated data for this cost, however, were not available and the differential in the superintendence costs was not estimated. This conclusion was drawn from discussions held with the procurement and logistics officers.

Critical information is also provided by the analysis of the contract typology with FOs (Table 6). Contracts stipulated with the FOs comprised three typologies: direct purchase waived, FDC waived and competitive tendering (see Table 1 for details).

In the case of Mali, almost 100 percent of contracts were FDC to help build the capacity of FOs for tendering. The trend is to continue with the FDC contract typology (2013).

⁸ For a full definition of what is included, see other costs on page 19.

⁹ The unit cost used is an average, although we would expect capacity building costs to reduce over time, as often they are a one-off start-up cost.

¹⁰ In order to protect WFP from the risk of non-conforming goods being shipped to distant locations where they may be rejected, WFP may appoint an independent superintendent company to inspect an order. The inspection is carried out at WFP's expense during production or prior to dispatch. If, however, an inspection has to be repeated due to a supplier's fault, the costs of a second inspection and of the superintendent company for the same purchase order will be charged directly to the supplier. Inspections must be completed within the delivery period stated in the purchase order.

Table 6: Number of contracts by typology

Year	Competitive	Waived	Waived Contracts		Total MT
			Forward delivery	Direct contract	
2009	4	6	6	0	743
2010	1	41	35	6	3 216
2011	5	24	23	1	2 635
2012	4	27	25	2	5 745
Total	14	98	89	9	12 339

Source: Author's compilation from official WFP Mali purchasing data.

According to a United States Department of Agriculture (USDA) report,¹¹ the terms of the FDCs were established in consultation with the FOs during the planting season. The FDC modality used a price formula, which was based on the average future price to be recorded by the *Observatoire du Marché Agricole* (OMA) on the date of delivery in the area of production, preventing the contract price to be below market price. At delivery, the P4P team averaged out the price of cereal in the regional markets on that day and then established the price for the collection point. In cases where the pick-up point was not surveyed by the OMA, market prices collected through the partners' regular market surveys and market wholesale prices collected by the local representatives of the Ministry of Agriculture were used to determine final commodity price. FDCs also included a floor price determined by the historical regional average producer prices of millet and sorghum in the programme area from the preceding three years, at the date of delivery. While during the first years WFP used an average regional price as reference for price setting, this approach was insufficiently flexible and in some cases led to WFP offering unattractive prices and FOs deciding to sell their produce to other buyers. From 2012 on, market prices at delivery place were used as a reference.

Other costs

Investment costs were estimated at USD 0.7 million and included contracts for training, infrastructure and equipment for participating farmers. Specifically these resources were used to provide farmers with seven warehouses (1 500 tonnes of combined capacity); equipment for the warehouses (shelters, pallets, etc.);

and some post-harvest transformation equipment.

Training costs¹² were estimated at USD 0.25 million. Overall, close to 3 000 farmers were trained under the programme, which translates to an investment cost of approximately USD 80 per farmer. However, participating farmers benefited from extensive training provided by other partners. Estimated costs were not recorded.

Partner contributions. P4P has established a broad series of partnerships with various stakeholders¹³ who have helped implement project activities, focusing on training and FO capacity building and strengthening. Some of these partners were already working with the FOs when P4P started and WFP built on their results, knowledge base and specific capacity. Unfortunately, it was difficult to estimate these contributions as partners' costs were not recorded. WFP has built on the ongoing efforts (financed by other development partners) in support of FOs, acting as a catalyst.

Default rates. According to the Overseas Development Institute (ODI) P4P overall mid-term review, defaults did not significantly disrupt the pipeline to WFP's food assistance. The fact that over three-quarters of the food contracted from smallholders in some of the poorest countries was delivered, meeting time, price and quality specifications, is an important achievement. However, the overall P4P default rate, which stands at

11 Report on USDA-funded purchases 2009-2011, August 2011.

12 Training was on production/productivity, post-harvest techniques and access to and management of modern post-harvest infrastructure, business skills and others.

13 *L'Association Malienne pour la Sécurité et la Souveraineté Alimentaires* (AMASSA); Catholic Relief Services (CRS); *Conseils et appui pour l'Education de Base* (CAEB); *Signigondière*.

24 percent of the total purchases delivered, is only tolerable because P4P is such a small share of WFP's total local purchase. In Mali, default rates have been lower than the ODI calculated average for the entire P4P period, ranging from 3 to 10 percent. This good performance has limited the financial cost of default¹⁴ in the country.

Surpluses. In some cases the FOs collected more grains than those foreseen in the contracts. FOs assumed that WFP was ready to purchase the additional quantities, leading to discussions with WFP and delays to change contract agreements, as WFP agreed to buy the additional quantities.

Currently, when FOs provide more grain, it is always purchased by WFP through the direct contracting modalities to avoid bureaucratic delays rather than amending an existing contract. This practice is somehow contradictory and could lead to misunderstandings with farmers. It is important for FOs to understand that a contract is binding and quantities are fixed, as a private sector player would rarely accept a surplus in the delivery of agreed quantities.

¹⁴ In addition, delays in delivery have a cost and should somehow be estimated. Often, by extending delivery terms/periods because FOs are unable to meet the original delivery time, one "masks" defaults: i.e., the contract is not defaulted because one has extended the delivery terms/dates.

A benefit constitutes an increase in output or savings in resource use. Table 7 presents a list of direct and indirect benefits. The direct benefits to farmers investigated and described in the P4P programme included: crop intensification through improved productive input use and improved agronomic practices; incremental income owing to increased production and/or higher selling prices; increased output quality (and higher unit prices); reduced production costs; reduced crop wastage through access to storage facilities (warehouses); and time saving or better remuneration of labour. The indirect benefits are those not directly expected by implementing project activities but more likely generated by the dynamics of the project activities and results. The benefits list is not exhaustive, and not all potential benefits were included in the analysis. During field visits, some minor benefits were observed but not included, as they were considered merely anecdotal, thus bringing no added value to the analysis. Further to the benefits description and analysis, four representative crop models were developed to systematically show the benefit potentially generated at farm level.

Quantitative analysis

Though difficult to distinguish clearly, these benefits would primarily result from a combination of the following changes at farm level owing to P4P interventions (rain, infrastructure and equipment):

- Higher farmgate prices through better quality produce;
- Increased production, productivity and selling techniques through the adoption of improved technology packages;
- Improved technical and negotiation capacities of farmers thanks to training received; and
- Improved post-harvest technologies and best practices, and access to storage facilities such as warehouses.

Increased selling prices. While the investment analysis does not seek to provide an overall analysis of price trends, there are interesting opportunities for

examining the scale of increased financial benefits accrued by participating farmers through P4P, especially as this is one of the key indicators of the entire programme. This takes into account different commodity quality categories, given that one of the goals and requirements of P4P is improved commodity standards by producer FOs. In the case of Mali, P4P farmers have received significantly higher crop prices since joining the P4P initiative. It is assumed that the price increase is largely due to the enhanced quality of crops produced, improved post-harvest handling activities and correct grading.¹⁵ The estimated farmgate price increases ranged between 30 and 50 percent for all crops.¹⁶

There is an indication that benefits stemming from the better prices and incremental production sold seem to have more than compensated for the increased production and post-harvest handling costs. It was, however, difficult to attribute the effect of the P4P intervention on farmers' prices because P4P has only recently begun collecting information on farmgate prices for local procurement - essential information for demonstrating this kind of impact.

As previously described at delivery, the P4P team averaged out the price of cereal in the regional markets on that day and then established the price for the collection point. This price setting mechanism was changed in 2012 to allow for more flexibility. FDCs also included a floor price determined by the historical regional average producer prices of millet and sorghum in the project area from the preceding three years, at the date of delivery. This process assured farmers of a ready market provided they

¹⁵ Grading is an important practice for producers in preparing the crop for market. The grade actually determines the price the farmers receive for their crop at the market. It is a good practice for producers to start grading at the farm before taking the produce to the market as it gives them an indication of the worth of their crop-related income.

¹⁶ The same price increases were used for the quantitative model illustrating the financial analysis at farm level and presented in the next chapter (quantitative models), excluding rice for which the price remained unchanged.

Table 7: Direct and Indirect Benefits

Direct Benefits	Indirect Benefits
Increased selling prices (Price premium, floor price)	Increased market opportunities Access to storage for overall production
Increased productivity/production	Increased access to land for women
Improved sales planning (Food availability and security)	Development of new income-generating activities
Increased FO capacity and membership	
Post-harvest loss reduction	
Predictable market access under P4P	

were able to meet the quality and quantity of the required commodity. It also gave financial institutions the confidence to use contracts as collateral.

These improved terms of trade translated into increased income, increased food availability at farm level or a combination of both. During field visits, farmers (especially women) reported increased food availability, which was considered one of the programme's major benefits.¹⁷

Development of new income-generating activities. Participating farmers, particularly women, reinvested the increased income generated by engagement in the P4P scheme in farm and off-farm income-generating activities. Reported activities included small livestock and small trading.

Impact of training. P4P engages farmers in training on a number of topics such as leadership and good governance, production and productivity, basic business management, warehouse management skills and post-harvest management.

In general, farmers interviewed during field visits showed great interest and appreciation for the training provided, ranging from production enhancement to post-harvest loss reduction to marketing. Skills acquired by farmers had an impact well beyond the targeted crops and a commercial mindset is growing among them. It was also recorded during field visits that farmers not directly trained by WFP were benefiting from training by lead farmers (training of trainers) and learning by doing with trained farmers. The spill-over effect appeared significant during field

visits and resulted in a larger number of actual beneficiaries and a lower unit cost per trainee. Main changes observed, owing to training, are listed below:

1. Adoption of improved agriculture practices. Specific training was provided to improve agricultural practices and input use. State extension services supported the P4P initiative, introducing both best practices and innovation such as the "fertilizer microdosing" and extending the fertilizer subsidy to P4P-supported crops.¹⁸ Data on official use of fertilizer and improved inputs by farmers were not available. Fertilizer use on millet and sorghum increased dramatically thanks to both the Government fertilizer subsidy and increased farmers' income. In some cases, farmers shifted from low-input technologies over large fields to an intensive system over smaller plots (e.g. during field visits farmers reported to have moved from 5 to 3 hectares). The improved practices and results obtained by farmers led, in some of the programme areas, to a switch in the cropping pattern: substituting cotton with millet or sorghum, which had a positive impact on income.

¹⁸ Design of the subsidy: the subsidies targeted urea and diammonium phosphate (DAP) to ensure a CFA 12 500 retail value for 50 kg fertilizer bags. For urea, this represents a 22 percent subsidy and for DAP, it amounts to a 43 percent subsidy. At present, producers are eligible for the subsidy based on their planned planted acreage of eligible crops. In controlled irrigation areas, the adequate quantities of fertilizer are 2 bags of DAP and 4 bags of urea per hectare. In flood areas, the quantities are 2 bags of DAP and 3 bags of urea per hectare. The number is rounded to integer number of bags (source: Fertilizer subsidies in sub-Saharan Africa, Zoé Druilhe and Jesús Barreiro-Hurlé. FAO 2012, ESA working paper No. 12-04).

¹⁷ It was not possible to verify this information with official data or other research.

2. According to field interviews, training in **entrepreneurship and basic business management** skills contributed to changes in farmers' approach to agriculture. The interviewed farmers now perceive agriculture as a business. Improved seed and fertilizer are increasingly used in P4P areas, as reported by farmers. The latter also reported having learned the basics for input expenditure recording and price setting for the final produce. They are applying these skills to all transactions that go well beyond P4P crops. Furthermore, all the farmers interviewed reported that the planning of sales and stocks helped them improve their **food security**. Thanks to specific training the farmers are now able to calculate their family food needs up to the next harvest. Based on this calculation, farmers sell only the surplus production, estimated with respect to household consumption. Prior to P4P training activities on planning sales, farmers used to sell the entire production at harvest and then were forced to buy back later in the year from traders at higher prices.

3. **Post-harvest losses** in Mali range between 10 and 20 percent of yields. High post-harvest losses are blamed on lack of storage facilities, mismanagement of crops after harvest at farm level and low agroprocessing capacity. P4P had an important impact, particularly with regard to the provision of training on post-harvest handling and the rehabilitation/construction of warehouses. Farmers were trained on reducing farm losses and on proper storage at warehouses. An additional storage capacity of 1 500 tonnes was installed directly by WFP in the country, and partners provided other warehouses to FOs. For the latter it was not possible to obtain exact figures. Estimates of reduced post-harvest losses for the analysis are therefore based on new storage capacity, specific training on post-harvest crop handling and storage at household level before warehouse storage. For the analysis presented in the next chapter, a 20 percent reduction in post-harvest losses was assumed.

The introduction of the Purdue Improved Cowpea Storage (PICS)¹⁹ bags for beans helped reduce post-harvest losses to nearly zero and enabled farmers

(especially women who grow mainly beans) to wait for the best price in the markets.

4. **Increased farmer participation in FOs.** P4P in Mali currently operates in the centre and south of the country, engaging with 11 FOs that have around 10 000 farmers as registered members. The share of FO members who participate in P4P marketing is not available. The strengthening of the FOs has been impressive. Starting from cooperatives, the P4P is now supporting the creation of unions (aggregation of cooperatives) and new cooperatives at village level. Through its support to the FOs, WFP has strengthened trust between members, increased membership and helped raise farmers' bargaining power.

5. **Predictable market access under P4P.** Critical information is provided by the analysis of the FOs' contract typology (Table 6). The FDC method (waived) allows the FOs to sign contracts for a given quantity at the current market price, plus a premium for quality (USD 40 per tonne). Furthermore, the contract has a minimum floor price that is guaranteed to the farmers in case the market price is lower than the agreed price. This minimum price was never applied during the four-year programme, as the market price never dipped below the floor price. Farmers benefited from this adjustment, which resulted in a fair market price.

Discussions held with farmers and FOs highlighted the importance of introducing FDCs, as they were not used to selling through this type of contract before P4P. Most of the farmers appreciated this contract because it had a positive impact for smallholders in terms of assured markets and investment planning. This was also confirmed through key informant interviews with service providers and partners.

The contract typology analysis shows that competition was waived for 60 to 80 percent of the contracts during the years under analysis (2009-2012). The waived contracts gave a competitive advantage to P4P farmers and privileged market access. It is difficult to draw conclusions from these data alone, and a deeper analysis of single transactions would be interesting to provide a clearer picture. WFP will sooner or later withdraw

¹⁹ <http://www.purdue.edu/newsroom/research/2012/120221MurdockPICS.html>

as an institutional buyer, thus FOs must be able to compete on the market without waivers or other privileged market access. The trend for 2013 follows the previous years and all the contracts signed with FOs fall under the FDC category, highlighting issues of sustainability and the capability of FOs to operate in the open market.

Qualitative analysis

Qualitative data can provide important indicators of programme results or constraints, and also increase insight into the impact of P4P activities in areas where figures are not yet available or a numeric modelling is not appropriate. Important benefit trends are highlighted and this category may suggest areas for future study that, with appropriate sampling methodology, could provide statistically valid data.

Access to new markets. Partial information is available on market access beyond WFP. It was not possible to estimate any trend; however, some potential markets were analysed. The institutional buyer *l'Office des Produits Agricoles du Mali* (OPAM) has important needs, more than 50 000 tonnes of different grains (e.g. millet, sorghum) per year, with a quota for FOs close to 7 000 tonnes. Discussions with OPAM officials, however, revealed that FOs were unable to meet their quotas and some had difficulties in providing the 2 percent impurity standard for the grains delivered. This means that some FOs have not yet matured in terms of quality and still need support.

Further to the OPAM market, some of the supported FOs are now being approached by private traders attracted by the improved quality of the commodities and the available bulked quantities at warehouses. Discussions were undertaken both with private sector large and medium-sized buyers. Large buyers underlined some issues in dealing with FOs: impurity level exceeding the 2 percent; delivery timing not respected; and unexpected price discussions upon delivery. These issues constrain the relationship between private sector operators and FOs, and these potential markets will not be available until FOs adopt a more professional approach. Medium-sized buyers regularly keep a closer relationship with FOs and are seemingly able to adapt to a change in quality, delivery and prices.

Access to finance. Notwithstanding ongoing efforts by the Government and International financial institutions (IFIs) to increase small farmers' access to finance, the financial sector in Mali still suffers from: inadequate credit to meet the needs of smallholders; credit often offered only for the short-term purchase of inputs; medium- to long-term credit not available or insufficient; and absence of financial products for social needs (health, education, consumption). FOs with sufficient resources are able to provide liquidity to their members prior to receiving payment from WFP at the end of the procurement process, and pre-finance members for the inputs for the following planting seasons. FO management/ members interviewed reported to have used the P4P FDCs as guarantee collateral for their loan requests to commercial banks. These new loans are typically used for purchasing crops from members and for buying improved inputs. This dynamic is still in its infancy and only the more structured FOs are able to interact with private banks and able to access the credit.

Women's access to land. It was reported during field visits that changes in agricultural practices indirectly led to women's increased access to land. This resulted from shifting from extensive cultivation on 3 to 5 hectares to more efficient and intensive cultivation on 2 hectares per household. The fallow land was left for rotation and/or given to women to cultivate beans, peanuts and sesame seeds. Women reportedly increased their income by using this land, thereby contributing to household expenses. These findings are merely anecdotal based on field observations, but could be an interesting area of research.

This chapter develops some financial models to provide further insight into the P4P benefits and sustainability.

The objective was to provide a practical means to assess the profitability and benefits for farmers of P4P activities and procurement. As the analysis was ex-post and data were not originally collected for this purpose, no attempt was made to calculate the internal rate of return and the net present value of the supported activities.

Agriculture in Mali is extremely vulnerable to environmental risks and climatic shocks, such as drought, flooding, irregular rainfall patterns and locust invasions. Most of Mali's agriculture is dominated by household subsistence rainfed farming. The majority of rural inhabitants have limited access to land and about 68 percent of them cultivate plots of less than 5 hectares. Most farms are ill equipped to adopt modern practices, and farmers do not have access to credit to make the necessary investments.²⁰ The use of agricultural inputs and mechanization is limited. Post-harvest handling of crops and livestock products is weak, and processing technologies are largely undeveloped. The illustrative models were based on observations made during field visits in the southern part of the country.

The **illustrative models** (Annex 4) present a best-case scenario for farmers who apply improved agronomic practices and input use learned through formal trainings and on-the job training provided by P4P. This best-case scenario does not apply to all farmers participating in the P4P scheme.

Parameters and assumptions. The parameters for the models are based on the information gathered during the mission and in particular through the farmer group discussions: interviews with about 70 members, FO board members and a review of P4P preliminary baseline

follow-up reports, available documents and statistics from ongoing interventions supporting agricultural and value chain development in Mali (e.g. IFAD-FIER²¹). Prices reflect those actually paid/received by the farmers. These were collected during the field visits. Conservative assumptions were made for both inputs and outputs.

Without and with project scenarios.

The analysis focuses on a comparison of the "without project" and "with project" scenarios. In the "without project" scenario, it is assumed that farmers would continue with the existing low-input, low-output production system and that opportunities for increased value addition and marketing in the project area would remain limited. In the "with project" scenario, estimated increases in production were based mostly on field visits and information from ongoing interventions in Mali and the P4P preliminary baseline follow-up report. It must be noted, however, that these models do not have any statistical validity nor are they representative in a technical sense. Therefore, they cannot be used to estimate general income increases at household level.

Reduced post-harvest losses were estimated based on the additional storage capacity, of which 1 500 tonnes were installed by P4P rehabilitating existing warehouses and others provided by partners. Additional benefits discussed during field visits were achieved by the introduction of the PICS bags for beans, as presented in the earlier chapter on benefits.

Four representative P4P crop models, namely sorghum, millet, beans and rice, were developed to depict at farmer/farm level the benefits previously described: training on production/productivity; post-harvest techniques; use of PICS bags; access to modern post-harvest

²⁰ Source: IFAD-FIER project document, and Enabling the Rural Poor to Overcome Poverty in Mali, IFAD December 2011

²¹ FIER: *Formation professionnelle, insertion et appui à l'entrepreneuriat des jeunes ruraux*. http://operations.ifad.org/web/ifad/operations/country/project/tags/mali/1661/project_overview

Table 8: Illustrative crops models

		SORGHUM			MILLET			RICE			BEANS		
		Start	With-P4P	Change %	Start	With-P4P	Change %	Start	With-P4P	Change %	Start	With-P4P	Change %
Physical production	Kg	700	1 050	50	700	1 050	50	1200	2 400	100	700	940	40
Inputs	USD	34	83	144	33	84	154	62	224	261	52	160	207
Family labour	Days	16	23	50	16	32	100	17	32	88	37	79	135
Production cost*	USD	0.13	0.17	30	0.12	0.17	42	0.1	0.14	25	0.22	0.38	72
Net income	USD	156	332	128	215	415	93	147	266	52	385	757	96

* Unit costs per kg

Source: Field findings, January 2014.

infrastructure; new market access; and higher prices for improved quality. Table 8 presents the broad categories of production costs and revenues for each of the models and the net income financial results.

The **crop models** show the potential gains at farm level for participating farmers with 1 hectare of land. Based on the data and information previously mentioned, the increase in production was estimated for the two scenarios. Details on crop models are in Annex 4.

The estimated total increase in production, based primarily on field findings, was between 40 and 100 percent, depending on the crops supported. The related income increase for 1 hectare of land was between USD 120 and USD 270, equivalent to a 50 to 130 percent increase. The models provide an estimate of the financial value of the overall production, though in reality only a small fraction was sold to the market as the major share was used for household consumption. Furthermore, farmers reported that the additional available production was partially used for household consumption. The latter was particularly interesting as it led to a dual benefit: increased food availability and consumption smoothing at household level during the lean season. The models do not capture the reported switch in land allocation among crops on the available land, although it would be interesting to investigate the financial gains of this shift further (e.g. from cotton to sorghum, as reported during field visits).

The models capture family or village job creation (family labour line) in terms of additional labour requirements during

production and harvest/post-harvest periods. Farmers reported the creation of jobs in farming and post-harvest activities as one of the major indirect benefits of the P4P scheme.

Production costs per hectare have increased significantly as expected for all crops. The reasons behind this increase are the new requirements in terms of improved inputs and additional labour. Farmers can afford to incur greater production costs due to increased income from sales and the support provided under the P4P project. Nevertheless, farmers need to invest more financial resources in production and are more exposed to financial risks in case of crop failure (especially if crops are rained) or price drops (although the floor price guaranteed for millet and sorghum would limit this risk). Investment and working capital are sometimes difficult to raise as credit is not easily available in rural areas. The link with financial service providers could enhance the benefits and ensure sustainability of the scheme.

This country case study indicates that through P4P, WFP was able to purchase more than 30 percent of the food needs for its country assistance programmes. WFP acted as a catalyst for other partners' interventions, building on existing ongoing interventions and avoiding duplication. Mali's state agriculture structure has been supportive of the initiative, through direct involvement of its extension structure (e.g. introduction of fertilizer microdosing) and through the fertilizer subsidies that target some of crops supported through the P4P programme.

P4P has generated some important benefits at farm and FO level. The most significant increases reported were in productivity and physical outputs, changes in agricultural practices, shifts in technologies and reduced post-harvest losses among the targeted population, although it was not possible to verify and/or validate the scale of this impact. It is important to note that not all potential benefits were included in the analysis, nor were the likely multiplier effects the programme could generate quantified.

The analysis on unit costs per tonne shows that P4P purchases are usually more expensive than regular purchases. When capacity building and logistics costs are to be added, the differential with regular programme purchase is even greater. However, this differential is expected to decrease over time as no more investment is foreseen (e.g. capacity building and infrastructure), and FOs are increasing their delivery using the DAP method.

The overall P4P intervention investment cost per beneficiary was estimated at USD 290 (including the FO membership, and total costs of the P4P intervention in Mali, excluding procurement), and the financial benefits per beneficiary (assuming he/she cultivates 1 hectare of land) will potentially exceed the investment costs after a few years, if calculated at farm level: additional income ranges between USD 120 and USD 370 per cultivated hectare, depending on crops (see Annex 4).

Training had a dramatic impact on farmers' activities and approach to agriculture as a business. The planning of sales training reportedly had a huge impact on household income and food security. The interviewed farmers now perceive agriculture as a business and the use of improved seed and fertilizer is growing among farmers, although erratic rainfall in recent years is increasing the financial risks of farmers investing in improved inputs. Drawing from field visit discussions, the participation of FO members appears to be high; however, there was no systematic tracking of farmers' participation on tenders.

P4P activities have started new economic dynamics well beyond the supported crops. The additional income for farmers has been used in multiple ways, including income-generating activities (from small livestock to petty trading). It was reported that women often undertook these activities during the intra-seasonal period when there were no agricultural activities or income.

In addition, new jobs were created for both women and men, particularly in post-harvest activities. It was not possible to estimate this increase in employment due to the limited time available for the study, but during field visits farmers highlighted this additional indirect benefit. It would be an interesting area for further research.

A key element of the programme's sustainability is access to markets other than WFP. Field findings have shown an increasing trend and capacity of farmers to gain access to other markets. The availability of produce in a single location with similar standards is key to attracting commercial buyers that cannot afford the transaction costs of dealing with many small producers and/or are not interested in hiring middlemen to aggregate on their behalf. However, discussions with private traders, especially the larger ones, provide a mixed picture as contracted FOs still do not comply with all contract clauses, in particular with regard to quantities, impurity level, agreed prices and timing of delivery. These aspects have limited FOs' access

to these markets and could be a serious issue with regard to their sustainability when WFP withdraws. FOs would need to be supported in better understanding the nature of and obligations of each party of the contracts. Relationships with mid-size traders appear to be more advanced due to their flexibility and closer relationship with the farmers. The latter gives an indication that regularity helps to develop trust between farmers and traders.

On one hand, the extensive use of FDCs (signed as late as the 2013 campaign), which feature a guaranteed minimum price, a quality premium coupled with the reported flexibility of WFP to buy beyond the quantities agreed in the contracts, raises concerns over the capacity of FOs to compete in an open market and clearly understand the implications of a binding legal document such as a contract. On the other hand, FOs are moving from the EXW to the DAP modality, showing the increased financial capacity to organize and pay for the transport themselves and bear the risks involved. This step is crucial for concluding transactions/business operations with private operators who normally do not provide transportation of goods from the FO warehouses.

The project design and implementation incorporated a flexible approach to women's inclusion and provided training on gender in an effort to consider the specific issues faced by women. It was not possible to verify the actual number of women participating in the programme during field visits or from M&E reports, as participating farmers were not individually tracked. The dynamics on increased land access observed during field visits are interesting and with the new income-generating activities show the important impact of the project on women.

Additional unquantifiable benefits from the project result from its de facto focus on rural poverty reduction and food security. The project provides additional sources of income and food availability for poor rural households, thereby contributing to reduced vulnerability.

The P4P interventions show a significant increase in productivity and agricultural outputs with no adverse effects on retail and producer prices for the time of analysis, benefiting highly vulnerable populations. However, due to the pilot nature and limited size and scale of the project, it cannot be expected to have a significant impact in changing overall farmer participation in values chain at country level. Nevertheless, useful lessons learned could be drawn and used to scale up best practices.

LIST OF DOCUMENTS

- Consolidated P4P FOs & training report
- Consolidated procurement reports for P4P
- FO sales beyond P4P
- Investment analysis methodology
- Logistics study
- Numeric datasets on purchases, commodities' prices, procurement methods, training provided and warehouse rehabilitation
- ODI mid-term review
- P4P global learning agenda
- P4P monthly update
- P4P global log frame
- P4P's contribution to building the capacity of FOs
- USDA study on Mali P4P procurement
- WFP Mali country brief

2

BREAKDOWN OF OFFICIAL P4P COSTS

Bill Melinda Gates Foundation funded grant

Mali	2009-March 2010	April-December 2010	January-December 2011	January -December 2012
Personnel	369 261	309 046	477 347	498 689
Travel	106 183	80 067	59 055	61 808
Consultant	8 423		17 031	
Supplies	72 293	82 268	1 845	58 407
Contracted Services	38 137	53 778	95 984	30 277
Subgrants to Other Organizations	5 000	35 528	166 994	267 274
Equipment	3 883	6 423	-	-
Grand total	603 180	567 110	818 256	916 455

QUESTIONNAIRE FOR FARMER ORGANIZATIONS

1. Overall perceived benefits of the programme;
2. Problems/difficulties with the programme (e.g. access to inputs);
3. Increase in production;
4. Average area planted and change in area planted (if any);
5. Increases in costs of production to meet the standards of WFP (e.g. labour time, inputs);
6. Decrease in post-harvest losses due to access to warehouses or specific training;
7. Percentage of members using warehouses and why;
8. Access to other markets with same standards and prices;
9. Access to finance;
10. Other advantages perceived due to the overall P4P support to their FOs;
11. Other changes: e.g., switch from volume-based selling to weight-based selling of the production;
12. Participation level in P4P procurement by members (and non-members) and trends;
13. The preferred delivery system: EXW or DAP; and
14. Payment period.

Annex

4

CROP BUDGETS

Sorghum Financial Crop Budget

Area: 1 Hectare	Past Situation				With Project: output will increase by 50%			
	Unit	No. of Units	Unit Cost (FCFA)	Value (FCFA)	No. of Units	Unit Cost (FCFA)	Value (FCFA)	
Output								
Grain	kg	700	130	91.000	1.050	190	199.500	
Total Output				91.000			199.500	
Variable Costs								
1. Inputs								
Seed								
Improved seeds	kg				10	250	2.500	
Recycled/saved seeds	kg	10	130	1.300	20		0	
Fertilizer /a		1	10.000	10.000	2	13.750	27.500	
Fungicide				0			0	
Miscellaneous (Bags etc..)	lumpsum	1	5.000	5.000	1	10.000	10.000	
Sub-total Inputs				16.300			40.000	
2. Family Labour								
Ploughing & planting (incl. fert. applic.)	pers. day	12	1.000	12.000	16	1.000	16.000	
Harrowing	pers. day	4	1.000	4.000	3	1.000	3.000	
Puddling	pers. day			0		0	0	
Spraying	pers. day	0	1.000	0	2	1.000	2.000	
Weeding	pers. day	0	1.000	0	2	1.000	2.000	
Hired Labour	pers. day			0			0	
Sub-total Labour		16		16.000	23		23.000	
3. Other Variable Costs								
Harvesting	bags	7	500	3.500	12	500	6.000	
Transporting	bags	7	500	3.500	12	500	6.000	
Post-harvest	bags	7	500	3.500	12	500	6.000	
Pesticide application	bags	7	500	3.500	12	500	6.000	
Sub-total other variable costs				14.000			24.000	
Total Costs				46.300			87.000	
Gross Margin (family labour not valued)				74.700			159.500	
Gross Margin (family labour valued)				44.700			112.500	
Net income (family labour not valued)				74.700			159.500	
Return to family labour (per person day)				4.669			6.935	
Net income (family labour valued)				44.700			112.500	
Total Production Costs / kg (family labour not valued)				66,14			82,86	

a) NPK, Urea Herbicide

Beans Financial Crop Budget

Area: 1 Hectare	Past Situation				With Project: output will increase by 40%			
	Unit	No. of Units	Unit Cost (FCFA)	Value (FCFA)	No. of Units	Unit Cost (FCFA)	Value (FCFA)	
Output								
beans	kg	700	300	210.000	980	450	441.000	
Total Output				210.000			441.000	
Variable Costs								
1. Inputs								
Seed								
Improved seeds	kg				75	500	37.500	
Recycled/saved seeds	kg	75	300	22.500			0	
Fertilizer /a					1	20.000	20.000	
Pesticide				0	1	15.000	15.000	
Miscellaneous (Bags etc..)	lumpsum	1	2.500	2.500	2	2.500	5.000	
Sub-total Inputs				25.000			77.500	
2. Family Labour								
Ploughing & planting (incl. fert. applic.)	pers. day	7	1.000	7.000	15	1.000	15.000	
Harrowing	pers. day	20	1.000	20.000	30	1.000	30.000	
Puddling	pers. day			0		0	0	
Spraying	pers. day			0	4	1.000	4.000	
Weeding	pers. day	10	1.000	10.000	30	1.000	30.000	
Hired Labour	pers. day			0				
Sub-total Labour		37		37.000	79		79.000	
3. Other Variable Costs								
Harvesting	bags	7	500	3.500	12	500	6.000	
Transporting	bags	7	500	3.500	12	500	6.000	
Post-harvest	bags	7	500	3.500	12	500	6.000	
Pesticide application	bags	7	500	3.500	12	500	6.000	
Sub-total other variable costs				14.000			24.000	
Total Costs				76.000			180.500	
Gross Margin (family labour not valued)				185.000			363.500	
Gross Margin (family labour valued)				134.000			260.500	
Net income (family labour not valued)				185.000			363.500	
Return to family labour (per person day)				5.000			4.601	
Net income (family labour valued)				134.000			260.500	
Total Production Costs / kg (family labour not valued)				108,57			184,18	

a) NPK, Urea Herbicide

Millet Financial Crop Budget

Area: 1 Hectare		Past Situation				With Project: output will increase by 50%			
		Unit	No. of Units	Unit Cost (FCFA)	Value (FCFA)	No. of Units	Unit Cost (FCFA)	Value (FCFA)	
Output									
Grain	kg	800	150	120.000	1.200	200	240.000		
Total Output				120.000			240.000		
Variable Costs									
1. Inputs									
Seed									
Improved seeds	kg				10	300	3.000		
Recycled/saved seeds	kg	10	150	1.500					
Fertilizer /a		1	10.000	10.000	2	13.750	27.500		
Fungicide									
Miscellaneous (Bags etc.)	lumpsum	1	5.000	5.000	1	10.000	10.000		
Sub-total Inputs				16.500			40.500		
2. Family Labour									
Ploughing & planting (incl. fert. applic.)	pers. day	12	1.000	12.000	20	1.000	20.000		
Harrowing	pers. day	4	1.000	4.000	6	1.000	6.000		
Puddling	pers. day			0		0	0		
Spraying	pers. day	0	1.000	0	3	1.000	3.000		
Weeding	pers. day	0	1.000	0	3	1.000	3.000		
Hired Labour	pers. day			0			0		
Sub-total Labour		16		16.000	32		32.000		
3. Other Variable Costs									
Harvesting	bags	7	500	3.500	12	500	6.000		
Transporting	bags	7	500	3.500	12	500	6.000		
Post-harvest	bags	7	500	3.500	12	500	6.000		
Pesticide application	bags	7	500	3.500	12	500	6.000		
Sub-total other variable costs				14.000			24.000		
Total Costs				46.500			96.500		
Gross Margin (family labour not valued)				103.500			199.500		
Gross Margin (family labour valued)				73.500			143.500		
Net income (family labour not valued)				103.500			199.500		
Return to family labour (per person day)				6.469			6.234		
Net income (family labour valued)				73.500			143.500		
Total Production Costs / Kg (family labour not valued)				58,13			80,42		

a) NPK, Urea Herbicide

Rice Financial Crop Budget

		Past Situation			With Project: output will increase by 100%		
Area: 1 Hectare	Unit	No. of Units	Unit Cost (FCFA)	Value (FCFA)	No. of Units	Unit Cost (FCFA)	Value (FCFA)
Output							
Grain	kg	1.200	225	270.000	2.400	225	540.000
Total Output				270.000			540.000
Variable Costs							
1. Inputs							
Seed							
Improved seeds	kg				65	300	19.500
Recycled/saved seeds	kg	65	225	14.625			0
Fertilizer /a					1	65.750	65.750
Organic fertilizer	kg	1	10.000	10.000	25	500	12.500
Fungicide							0
Miscellaneous (Bags etc.)	lumpsum	1	5.000	5.000	1	10.000	10.000
Sub-total Inputs				29.625			107.750
2. Family Labour							
Ploughing & planting (incl. fert. applic.)	pers. day	15	1.000	15.000	25	1.000	25.000
Harrowing	pers. day	2	1.000	2.000	2	1.000	2.000
Puddling	pers. day			0		0	0
Spraying	pers. day	0	1.000	0	2	1.000	2.000
Weeding	pers. day	0	1.000	0	3	1.000	3.000
Hired Labour	pers. day			0			0
Sub-total Labour		17		17.000	32		32.000
3. Other Variable Costs							
Harvesting	bags	7	500	3.500	12	500	6.000
Transporting	bags	7	500	3.500	12	500	6.000
Post-harvest	bags	7	500	3.500	12	500	6.000
Pesticide application	bags	7	500	3.500	12	500	6.000
Sub-total other variable costs				14.000			24.000
Total Costs				60.625			163.750
Gross Margin (family labour not valued)				240.375			432.250
Gross Margin (family labour valued)				209.375			376.250
Net income (family labour not valued)				240.375			432.250
Return to family labour (per person day)				14.140			13.508
Net income (family labour valued)				209.375			376.250
Total Production Costs / kg (family labour not valued)				50.52			68,23

a) NPK, Urea Herbicide

