USAID–KENYA Accelerated Value Chain Development Program

POTATO VALUE CHAIN REPORT

No-cost Extension Period

1 October–31 December 2018

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International Potato Center

CONTENTS

ACRONYMS

ATC	Agriculture training center
AVCD	Accelerated Value Chain Development
EMC	Elgeyo-Marakwet county
HSMs	Hub seed multipliers
KEPHIS	Kenya Plant Health Inspectorate Service
NCE	No-cost extension
PVC	Potato value chain
UGC	Uasin Gishu county
WAOs	Ward agricultural officers

EXECUTIVE SUMMARY

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1. KEY ACHIEVEMENTS (QUALITATIVE IMPACT)

During the no-cost extension (NCE) period, the potato value chain (PVC) component of the Accelerated Value Chain Development (AVCD) program focused on sustainability of the project interventions. This focus is aimed at (1) ensuring the continued production of certified and quality seed and (2) supporting potato-marketing cooperatives to establish their offices, update their business plans, increase membership, and start providing services to potato farmer members. An inclusive approach to project design and implementation with the county governments has imparted the enabling environment to support these farmer institutions to further develop.

The PVC team cultivated a collaborative working environment with the county teams by involving county governments through the county focal points appointed by the county director of agriculture at the inception of the project. This resulted in embedding AVCD into country operational structures. The focal points ensured that project activities were given priority from county level through to ward level, with ward agricultural officers (WAOs) giving weight to project activities in their work plans. With guidance from the project staff based in Eldoret town and working as a team, potato activities were geared toward providing solutions to develop a seed system in the North Rift counties of Elgeyo-Marakwet County (EMC) and Nandi and Uasin Gishu County (UGC), improving potato productivity among farmers, and fostering market coordination and linkages.

Objective 1: *Develop at least 150 progressive smallholder farmers into seed potato businesses*

Activities focused on advancing the seed system to bring certified seed production to the North Rift counties through supporting the Nandi Potato Cooperative and the agriculture training centers (ATC) Chebara of EMC and Chebororwa of UGC. PVC partnered each Nandi Cooperative and ATC Chebara with ADC Molo to produce certified seed as a seed grower under their seed merchant license. ATC Chebororwa partnered with the Kenya Agriculture and Livestock Research Organization for the same.

Each institution registered the first crop planted in October 2018 for certification with Kenya Plant Health Inspectorate Service (KEPHIS). KEPHIS has inspected the crop during active growth and just before harvesting. Because it passed all inspection tests, the crop will be sold as certified seed for long rains where planting occurs in March/April. If production follows projections, there will be an annual injection of greater than 1,000 metric tons (MT) of certified seed into the North Rift PVC (Table 1). This represents an approximate increase of 15% from 2017 national production of 6,500 MT.[1]

TABLE 1. CERTIFIED SEED POTATO PRODUCTION PROJECTIONS FOR NORTH RIFT

Cooperative/ATC	Land under Seed Potato (ha)			Projected Seed Production (t)		
	SR 2018[a]	LR 2019[b]	SR 2019[c]	SR 2018	LR 2019	SR 2019
Nandi Potato Farmers' Cooperative Society	1	20	20	12	300	300
Chebororwa ATC	2	20	8	60	300	120
Chebara ATC	2	4	4	12	12	60
Total	**5**	**44**	**32**	**75**	**612**	**480**

[a] SR 2018: short rains 2018, planted October/November 2018.

[b] LR 2019: long rains 2019, planted March/April 2019.

[c] SR 2019: short rains 2019, planted October/November 2019.

[1] TechnoServe. 2018. Kenya Potato ISP.

The ATC's Nandi Potato Cooperative and PVC invested $31,000 for this seed production through cost-sharing 100 MT of seed storage and irrigation equipment for 2 ha; AVCD covered the cost of starter material consisting of 6.2 MT of basic seed and 65,000 minitubers for certified production. The cooperatives covered the remaining production costs (Table 2).

TABLE 2. SUMMARY OF INVESTMENTS TO SUPPORT CERTIFIED SEED POTATO PRODUCTION IN THE NORTH RIFT

Investment	Chebara ATC ($)	Chebororwa ATC ($)	Nandi Potato Cooperative ($)	Total ($)
Starter seed[a]	8,690	1,918	4,440	15,048
Irrigation facilities (1 ha each)	908	2,620		3,528
Seed storage (50 t each)	2,752		3,472	6,224
KEPHIS fees	500		500	1,000
ATC/Coop Investment	2,143	1,734	1,702	5,579
Total	**14,993**	**6,272**	**10,114**	**31,379**

[a] Starter seed consisted of 6.2 t of basic seed and 65,000 minitubers.

To support certified seed production, KEPHIS trained seven technical staff from Chebara and Chebororwa ATC, one member from the production subcommittee of the three potato cooperatives, and three county staff from EMC in seed potato certification. Key topics covered were good agricultural practices for seed production; eligibility requirements for a seed merchant and a seed grower; field inspection and related costs; tolerance levels for diseases and pests; sampling for postharvest laboratory testing; and sorting, grading, labeling, and marketing.

Output 1.2: *At least 150 decentralized seed multipliers developed to annually produce sufficient seed potato for 2,000 ha and obtain gross margins of $1,500/ha*

Sales data were collected from North Rift seed multipliers covering seed sales from the October planting season, short rains 2018, which was produced over the April–August planting season, long rains 2018. The continuous monitoring exercise documented that 310 farmers in the North Rift counties bought 69 MT of seed worth $27,000 (Table 3). Seed multipliers earned a combined total of $35,000, considering sales from ware potato as well as not all production is graded and sold as seed.

Sales data for Meru and the Nandi network of seed multipliers were presented in the annual report. These sales data were not collected for the October 2018 sales season because the partner Farm Input Promotions Africa, which supported these multipliers, was not engaged during the NCE.

Overall, seed was sold at $0.40 (40 KES) per kilogram—a price that was maintained consistently throughout all five seasons of seed sales.

Hub seed multipliers (HSMs). The seven HSMs in Meru County are progressing into seed businesses, of which four are youth. Five HSMs have obtained a business license, with a goal of becoming a seed merchant. These multipliers contributed 208 MT of the Y3 production. The HSMs are growing their businesses to comply with KEPHIS requirements to become a seed merchant by expanding the area they produce seed. They are also investing in seed storage of 10 MT capacity and, notably, four HSMs obtained loans totaling $2,230 to expand seed production.

During the NCE, HSMs sold 106 MT of seed potato valued at $42,200, an average of $6,000/HSM. They invested $5,825 for production during the October 2018–January 2019 season, which is projected to sell 171 MT of seed potato valued at $68,400. HSMs further project to invest $12,300 to plant 16 ha of seed potato in March 2019 (Table 4). Youth HSMs contributed considerably to this production and sales.

TABLE 3. DOCUMENTED SEED POTATO PRODUCTION AND SALES DATA FOR SEED MULTIPLIERS DURING FIRST 2 YEARS OF SEED BUSINESS

	Gender	Elgeyo-Marakwet			Nandi			Uasin Gishu			Total
		Year 1[a, b]	Year 2	Year 3	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	
No. of seed multipliers	Overall	**22**	**6**	**7**	**61**	**31**	**26**	**30**	**15**	**7**	Not additive
	Female	4	2	2	18	8	4	6	5	2	
	Male	15	3	4	42	21	21	23	9	4	
	Association	3	1	1	1	2	2	1	1	1	
No. of farmer purchases[c]	Overall	**122**	**77**	**52**	**324**	**366**	**205**	**155**	**162**	**53**	**1,516**
Quantity seed harvested (MT)	Overall	**33**	**37**	**15**	**85**	**145**	**47**	**46**	**66**	**17**	**491**
	Female	4	14	2.3	14	32	6.5	6	11	4	94
	Male	22	15	6.1	70	100	27.3	36	45	9	330
	Association	7	8	6.6	1	13	13	4	10	4	67
Quantity seed sold (MT)	Overall	**18**	**24**	**14**	**67.1**	**124**	**40**	**26**	**47**	**14.5**	**375**
	Female	3	8	1.8	16	26	5.5	3	8	4	75
	Male	11	8	5.6	51	87	24	21	33	6.5	247
	Association	4	8	6.5	0.1	11	11	2	6	4	53
Value of seed sales ($)	Overall	**7,120**	**9,224**	**5,320**	**25,748**	**47,118**	**15,919**	**10,366**	**17,719**	**5,736**	**144,270**
	Female	1,249	3,200	720	4,866	10,282	2,184	1,247	2,976	1,556	28,280
	Male	4,323	3,079	2,260	20,845	32,336	9,235	8,298	12,583	2,580	95,539
	Association	1,548	2,945	2,340	37	4,500	4,500	821	2,160	1,600	20,451
Mean no. of 50-kg bags/farmer	Overall	3	6	6	4	7	4	3	6	5	5

[a] Year 1–3 refers to years of sales, which occurred during project years 2 and 3, and NCE, respectively.

[b] Year 1–2 represent two seasons each year, Y3 represents a single season only.

[c] Farmers purchasing seed each season, inclusive of repeat purchases.

TABLE 4. HUB SEED MULTIPLEIRS FROM EMRU COUNTY SEED POTATO PRODUCTION AND SALES FIGURES AND PROJECTIONS

	Quantity Seed (t) Sold, Sept. 2018	Value of Seed Sales ($), Sept. 2018	Value of Investment ($), Oct. 2018	Projected Quantity (t) Seed Sales Mar. 2019	Projected Value ($) Seed Sales, Mar. 2019	Projected Seed Production (ha), Mar. 2019	Projected Value of Investment ($), Mar. 2019
7 HSM total	106	42,200	5,825	171	68,400	16	12,300
3 youth contribution	48	19,040	2,700	60	24,000	8	5,800

Objective 3: *Improve seed and ware potato market coordination through access to market information and linking value chain actors*

The project supported efforts to position potato farmers in an environment that promotes beneficial bargaining and negotiations as well as the provision of resources and services by the cooperative. Five cooperatives already show the potential of taking over from where the project left off.

The Nandi Potato Cooperative coordinated purchase of 40 MT of seed valued at $20,000 for cooperative members without project support. The county government provided the truck to transport the seed over three trips from Kisima Farm. This was a concerted effort, with farmers paying for the seed, the cooperative paying for transport cost, and the county government providing the truck. Additionally, farmers in the county bought 11.3 MT of certified seed transported by Kisima Farm to Nandi County on a promotional basis and sold in the county.

The EMC government allocated budgetary support to the PVC as a result of Elgeyo-Marakwet Potato Farmers Marketing Cooperative Society officials who mobilized potato farmers to attend the public participation forum, where potato ranked high in the four potato-producing sub-counties. For example, in Chepkorio ward, Keiyo South sub-county, farmers voted to allocate all their funds for seed potato after witnessing high yields when they used the certified seed they had received from the project in April 2018.

In Ainabkoi sub-county, UGC, a 50-MT ambient potato store had been built by the county government in 2016 but which had been underutilized. It recorded an increased usage as more farmers engage in potato farming as a business. Introduction of the 'Unica' variety with long dormancy will also increase its usage. Cooperative membership stands at 2,875 paid members among the five cooperatives (Table 5).

TABLE 5. POTATO MARKETING COOPERATIVES SUPPORTED BY AVCD

County	County	Date Established	Date Officially Registered	Membership as of 20 January 2019
Elgeyo-Marakwet Potato Farmers Marketing Cooperative Society	Elgeyo-Marakwet	May 2015	Nov. 2016	400 members paid the 200 KES registration fee in full or in part
Nandi Potato Growers Farmers' Cooperative Society Ltd	Nandi	Mar. 2017*	Aug. 2017	600 members paid the KES 500 registration fee in full or in part
Ainabkoi Seed Potato Unit (under Ainabkoi Farmers' Cooperative)	Uasin Gishu	Seed Potato Unit Jan. 2017	Cooperative registered 1963	20 members paid the KES 500 registration fee in full or in part
Meru Tamu Potato Farmers' Cooperative Society Ltd	Meru	Feb. 2017*	Aug. 2017	1,200 members paid the KES 300 registration fee in full or in part
Upendo Potato Farmers' Cooperative Society Ltd	Meru	Mar. 2017*	Sept. 2017	655 members paid the KES 100 registration fee in full or in part

* Directly supported by AVCD potato component since inception of the cooperative.

Thirty-five members of the five potato marketing cooperative societies in North Rift counties and Meru received a second round of support to review and refine their business plans. Two county extension and one cooperative officer, who supports the cooperatives, attended the training for their respective cooperative. Part two of the business and entrepreneurship skills focused on development of seed potato-specific seed business plan for the potato cooperatives. In addition, six technical staff from Chebara and Chebororwa ATCs were trained on business and entrepreneurship skills and on how to develop a seed business plan.

As part of strengthening the marketing linkages, the project initiated formation of potato marketing fora in collaboration with the National Potato Council of Kenya. The first potato marketing forum was held on 26 October in Meru County; the North Rift chapter was held on 13 December 2018. The purpose of the fora was to engage, familiarize, and have a common understanding between producers and buyers concerning varieties, quality, quantities, and unit prices. During business-to-business discussions, farmers learned about specific requirements for each buyer such as varieties preferred, quantities required, tuber size preferred, quality checks (grading and sorting), aggregation /collection mode, mode of payment and payment duration, and terms of agreement. On the other hand, buyers gathered information from farmers on production capacity, acreage, varieties planted, and expected harvesting dates for the short rain season. The interactions are already bearing fruit: Some of the potato marketing cooperatives are holding discussions with buyers who attended the forum with a possibility of signing agreements.

A postharvest consultant assessing the socioeconomic feasibility of differing storage types is finalizing a practical user tool/ The tool is intended for farmer groups, agri-businesses, farmers, and other investors to assess which type of storage is more feasible as per their operations and intentions. The tool will describe economics and storage feasibility for differing storage types, targeting different profiles of users, from individual farmer-owned storage (5–10 MT) to several types of ambient storage (50–200 MT), from solar-powered storage to conventional, on-the-grid large-scale units of 500–1,000 MT.

LESSONS LEARNED

Close engagement with the county governments positioned potato among the top crops for county agricultural departments, critical to supporting sustainability of project interventions. As the project winds up, the PVC team is proud of its accomplishments to date. Because of teamwork with a common vision during the implementation period, the PVC team is confident of the sustainability of potato programs in the three counties. The North Rift closure meeting will allow the entire team from the three counties to contribute their own ideas on how potato programs will move forward. The PVC team believes the county, in collaboration with cooperatives, is now better placed to carry on the potato mantle.

2. ACTIVITY PROGRESS (QUANTITATIVE IMPACT)

EG.5.2-1: Number of firms receiving USG-funded technical assistance for improving business performance was the only indicator affected during the NCE. Two additional firms were supported to improve business performance of their certified seed production businesses. The overall phase 1 achievements of the PVC are presented in Table 6.

3. PERFORMANCE DATA TABLES

TABLE 6. SUMMARY OF POTATO VALUE CHAIN PERFORANCE DATA TABLES OF ACHIEVEMENTS AGAINST TARGETS FOR FEED THE FUTURE INDICATORS FOR PHASE I

Indicator	Achieved/ Target Y1	Achieved/ Target Y2	Achieved/ Target Y3	Achieved/Target Total 3 Years
EG. 11-6: Number of people using climate information or implementing risk-reducing actions to improve resilience to climate change as supported by USG assistance	N/A	N/A	4,589/1,650	4,589/1,650
HL.9-2: Number of children under 2 (0–23 months) reached with community-level nutrition interventions through USG-supported programs (RAA)	0	123/425	1,283/200	1,406/625
HL.9-4 Number of individuals receiving nutrition-related professional training through USG-supported programs		51/48	60/18	111/66
EG.3.2-18: Number of hectares under improved technologies or management practices with USG assistance (RAA) (WOG)	206	4,625/534	8,518.4/6,989	13,349/7,523
EG.3.2-17: Number of farmers and others who have applied improved technologies or management practices with USG assistance (RAA) (WOG)		22,022/19,570	46,425/32,917	46,425/32,917
EG.3.2-1: Number of individuals who have received USG-supported short-term agricultural sector productivity or food security training (RAA) (WOG)		5,863/1,800	6,013/854	11,876/2,654
EG.3.2-5: Number of public-private partnerships formed as a result of USG assistance (RAA)		1/2	5/3	6/5
EG.3-1: Number of households benefiting directly from USG interventions (RAA)	4,506	21,285/18,700	40,855/35,200	40,855/35,200
EG.3.1-12: Number of agricultural and nutritional enabling environment policies analyzed, consulted on, drafted or revised, approved and implemented with USG assistance (RAA) Enabling environment for private sector investment Process/Step Stage 3: Drafting or revision		1		
EG.3.2-22: Value of new private sector capital investment in the agriculture sector or food chain leveraged by Feed the Future implementation (RAA)	22,029/20,000	49,728/25,000	80,768/45,000	152,525/90,000
EG.3.2-7: Number of technologies or management practices in one of the following phases of development		3/2	4/1	4/3
EG.3.2-20: Number of for-profit private	156	264/156	264/268	264/268

Indicator	Achieved/ Target Y1	Achieved/ Target Y2	Achieved/ Target Y3	Achieved/Target Total 3 Years
enterprises, producers organizations, water users associations, women's groups, trade and business associations and community-based organizations that applied improved organization-level technologies or management practices with USD assistance (RAA) (WOG)				
EG.5.2-1: Number of firms receiving USG-funded technical assistance for improving business performance (O)	N/A	6/10	19/20 + 2 *during NCE*	27/30

4. PERFORMANCE MONITORING

Activities during the NCE focused on institutional development of the existing cooperatives, ATCs, and youth groups. Monitoring requirements were therefore minimal and new beneficiaries were not recorded during the NCE. A continuous monitoring exercise was conducted to document seed production and sales data among seed multipliers in the North Rift counties.

5. CONSTRAINTS AND OPPORTUNITIES

6. PROGRESS ON GENDER STRATEGY–YOUTH AND PRIVATE SECTOR

As documented above (Table 4), three youth HSMs sold 48 MT of seed potato valued at $19,000 during the September 2018 sales period (an average of $6,300/youth). These youth HSMs invested $2,700 in their seed business during the October 2018 planting season, which is projected to sale 60 MT of seed valued at $24,000. Youth HSMs further plan to invest $5,800 to plant 8 ha of seed potato in March 2019.

6. PROGRESS ON ENVIRONMENTAL MITIGATION AND MONITORING

Seed of the 'Unica' potato variety is finally available and is being distributed to farmers to experience robustness of this variety.. Seed multipliers have also been multiplying 'Unica' from cuttings. Certified seed of 'Unica' is finally available this current season on a large-scale. The variety tolerates abiotic stresses such as heat and water stress, making it a climate-smart variety and providing farmers with more flexible options to cultivate potato. 'Unica' produces reasonable yields in seasons of unreliable rain when many other varieties experience crop failure. It can also be grown in warmer agro-ecologies and lower altitudes outside of the traditional cooler, highland areas where potato is largely restricted to. Thus farmers are able to diversify diversify crop production inito these nontraditional areas. 'Unica' is also becoming appreciated by markets, thus is a variety suiting farmer and market needs.

7. PROGRESS ON LINKS WITH GOVERNMENT OF KENYA AGENCIES

The potato component significantly embedded into county operational structures by working closely with the county governments to lead implementation of activities, monitor project interventions, and interact with project beneficiaries. The counties took leadership for planning and implementing learning farms and in supporting establishment of potato cooperatives. County WAOs lead seed distribution activities to raise awareness of new varieties and benefits of quality seed, and technically support seed multipliers. County offices lead nutrition-messaging activities, and WAOs collaborated with community health volunteers to deliver nutrition messages and train the same households in improved potato production technologies. WAOs led the intensive farmer-training programs, whereby the same farmers were trained in planting, hilling, disease management, and numeracy.

The implementation structure involved each county assigning a focal point with whom PVC directly interacted and supported mobilization of WAOs for project activities and monitoring. The county focal points provided an excellent feedback loop that kept the County Executive Committee members and the governors abreast of project activities. This efforts encouraged allocation of further resources to the PVC in their counties to continue building on the success of the AVCD program. This meant that everyone on the team brought on board issues for consideration without making it hierarchical. This was backed up by the quarterly reports circulated to the counties, highlighting project accomplishments; all these kept the potato crop in the limelight, even when the project started to step back during the final project year. The results of embedding AVCD into country operational structures are explained below. These investments by the respective count governments were triggered by AVCD activities, which showcased the value of potato businesses and the role of cooperative in streamlining and ensuring that farmers have a more equitable role in the value chain.

During the 2018–19 financial year, EMC allocated $110,000 (KES 11 million) to procure certified seed for potato farmers. The allocation was based on public participation, whereby project beneficiaries championed by the cooperative members prioritized potato in their wards.

UGC government supported potato mechanization by purchasing a potato ridger, planter, and harvester at a combined value of approximately $60,000 (KES 6 million). The machinery is for hire by farmers at a subsidized cost.

During the 2018 cropping season, Nandi County government provided a truck to transport 40 MT of certified seed purchased by Nandi Cooperative farmer members from Kisima Farm with transport costs supported by the cooperative. Further, Nandi County supported the cooperative by procuring quality seed worth $10,000 (KES 1.2 million) produced by the cooperative for distribution to 13 farmer groups, who later became cooperative members.

Importantly, several donor-funded programs in the counties have included potato as one of the target value chains. In EMC, both the World Bank-funded "Kenya Climate Smart Agriculture" project and the "Agriculture Sector Development Support Program–Phase 2" have potato as one of the major value chains. In UGC, potato is one of the crops to be supported by both these projects.

8. SUSTAINABILITY AND EXIT STRATEGY

All the NCE activities supported the exit strategy to ensure an enabling environment for sustainability of project interventions. As documented above, county governments and farming institutions began to autonomously continue business operations during the NCE without support or direct influence from AVCD.

9. SUBSEQUENT QUARTER'S WORK PLAN

Work plan and start up activities have begun for phase 2 of the AVCD program in Bungoma and Taita Taveta counties, including partner meetings and establishing presence in these two new counties.

ANNEX 1. KNOWLEDGE MANAGEMENT LIST

1–5. Updated business plans, with seed-specific business components for five cooperatives: Elgeyo-Marakwet Potato Farmers Marketing Cooperative Society, Nandi Potato Growers Farmers' Co-operative Society Ltd, Ainabkoi Seed Potato Unit (under Ainabkoi Farmers' Cooperative), Meru Tamu Potato Farmers' Cooperative Society Ltd, and Upendo Potato Farmers' Cooperative Society Ltd.

6. Socioeconomic feasibility of potato storage types targeting different profiles of users, individual farmer-owned storage (5–10 MT), several types of ambient storage (50–200 MT), solar-powered storage, and conventional, on-the-grid large-scale units (500–1,000 MT).