INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH AND KNOWLEDGE
ISSN-2213-1356 www.ijirk.com

Establishing and Scaling the Seed Potato Community Action Research Multi-Stakeholder Platforms: Lessons & Experiences from Kenya

Anthony M. Kibe
Associate Professor, Crops, Horticulture & Soils Department, Egerton University

Rahab W. Ngumba
Facilitator of the Nakuru Irrigation Acceleration platform, Egerton University

Abstract
Access to affordable high quality (certified) seed potato is the major setback in the seed and ware potato value chain (PVC) industries of the world. In Kenya, the major certified seed potato producers only meet 2 to 2.6 % of all the seed potato demand, estimated at over 140,000 tons annually, for cultivation in 161,000 ha, by most of the 600,000 to 800,000 small scale potato farmers. This paper highlights the lessons and experiences learnt in establishing and scaling up a seed potato multi-stakeholder platform (MSP) in Nakuru, Kenya. It discusses why there is 1) need to have access to sufficient funding, which government institutions lack; while the private sector doesn't support, as they are more profit oriented and don't support agricultural research and extension in collaboration with universities. Resulting in the lack of a skilled critical mass of youth in the agri-business sector. Other requirements include the need for, 2) a patriotic & generous people that share their technology, knowledge and resources; 3) the need for institutional reforms to house the MSP, particularly with respect to universities lacklustre outreach infrastructure; 4) setting mutually beneficial objectives that interest participating partners; 5) identifying & recruiting sincere and hard-working co-workers to drive the MSP objectives; 6) engaging strategic partners that have a mandate in the value chain; 7) be very patient & flexible and 8) maintaining accountability to partners. Actors along the seed potato value chain need to work together to avoid duplication of field day events and create synergy for accelerating impact and by focusing their concerted effort in supporting the right agriprenures. A paradigm shift is needed in our thinking of what the market is. It is not the processor, but the producer, who is apparently, the marketing agent & co-innovator in marketing his produce. He / She has to consistently maintain quality,

provide sufficient volumes of produce at affordable prices to enable profitable business for processor and decent and healthy meals for consumers. The paper concludes that a resource poor small-scale farmer cannot achieve all these as we expect in most of our pro-poor projects. For sustainability of projects, target farmers in Kenyan should have not less than US$ 6,000 annual income to make it in the seed potato business.

Key words: *Multi stakeholder platform, Seed potato, Nakuru, Kenya*

Introduction: The Challenge

Certified seed potato is expensive, costing between 2,500 to 3,000/- KES per 50 Kg bag (i.e., 50 – 60 KES/kg or US $ 0.5 to 0.6 /kg seed), because it requires every year rotations during its production cycle, thus demanding more acreage of land. Furthermore, the soils must be free from seed borne diseases (e.g., bacterial wilt) and pests (e.g., nematodes). For production of an acre of seed potato 16 to 20 bags seed is required depending on whether its grade 1 or 2. A farmer must therefore have more than US $ 450 to buy seed and add some more money for transportation from seed producing farms that are normally far away. Agro-vets don't store seed potato, because it is bulky and highly perishable. Many actors in the seed potato value chain (SPVC) lack skills and resources for investing and managing seed stores, which adds to the many challenges that make it difficult for small and medium scale farmers and entrepreneurs' to invest in this business.

For these reasons, access to affordable high quality (i.e., certified) seed potato is the major setbacks in the seed and ware potato value chain (PVC) industries. The major certified seed potato producers only meet 2.0 to 2.6 % of all the seed potato demand (Kaguongo *et al*., 2010, Parker, 2018). In 2016, it was reported that still less than 2% farmers use certified seed potato with the rest coming from informal sector, i.e., clean seed and farm-saved seed amounting to 4 % and 95%, respectively (Mutinda, unpublished thesis). Seed demand is estimated at over 140,000 tons for 161,000 ha, for cultivation by most of the 600,000 to 800,000 small scale potato farmers in Kenya. Potato consumption per capita in Kenya ranged from 30 to 40 kilograms per year in 2015, with increased consumption in urban areas upto 100 kilograms (MoALF,2016a). In 2017 however, potato production was greater than 1.48 million tons only (NPCK, 2017), which provides 32.8 kg/capita only for a 45 million population.

A solution proposed by the Seed Potato CARP+ at Egerton University was to support the transformation of small-scale farmers into seed potato producers. We are targeting existing potato producers in Nakuru sub-Counties where they can motivate and built-in capacity to become seed suppliers to other seed potato multipliers a/o ware potato farmers in their neighborhoods, thus, enhancing access. Transformation from subsistence to small and medium enterprises has been targeting individuals, organized and registered producer organizations (PO), e.g., farmer cooperatives unions (FCU) common interest groups (CIGs) and youth and women associations).

This paper discusses the experiences and lessons learnt in the on-going process of setting up a seed potato multi-stakeholder platform in Nakuru County. It is the hope of the authors that it will illicit constructive discussion in our effort to tackle the challenges set out in the big four agenda of the Kenyan government on achieving food and nutrition security.

Materials and Methods

Initialization of a Multi-stakeholder Platform

Financial resources

The project was initiated by writing a proposal to secure funding from RUFORUM-MasterCard Foundation for a four-year grant to support the Community Action Research Project titled, "Enhancing access to high quality seed potato for improved productivity and income amongst small scale farmers in Nakuru County".

Accessing funds from government sources for agricultural research is a big challenge. Provided funds are usually insufficient, largely due to low allocation in national budgets accentuated by the lack of a focused research strategy in the food security agenda. Most of the evident agricultural research is done by non-governmental organizations with foreign funding, and international research institutes that have connections with European or American funding organizations. Most international funds are therefore strategically channeled to foreign associated local bodies and personnel, in whom they have confidence. The lack of an effective research strategy to provide sufficient funds to support research and post graduate work at local research organizations contributes and weighs heavily on the meager-performance of local institutions. Scientists and post graduate students have to support their research from salaries and part-time employment. As a result, their works are not normally inclusive enough to enable it get a wide interest of peer scholars internationally as well as amidst farmer and industrial communities. The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) is however making a big difference to change this position, by promoting academia's contribution and voice to agricultural development.

Local and multi-national industries based in Kenya hardly support agricultural research. They have little patience and are not well tutored to understand the rigors and patience needed to undertake research that supports development of effective innovations. Most are adapters of foreign technologies and focus is largely profit oriented with little interest in capacity building of local youth and women involved in academia. The models we see in developed countries where the industry works together with academia and scientists to develop and sustain technology is highly lacking in Kenya. Industrialists should be challenged to support research and capacity building of local youth instead of always complaining that our graduates are "half baked". If they want "fully baked graduates" then they should start investing in local colleges and universities as observed in the western world where they are also giving commensurate compensation, like tax rebates.

A multi-Stakeholder platform (MSP) composed of patriotic and sincere stakeholders is lacking and is very much needed for achieving prosperity as envision in Vision 2030 and the Big Four Agenda.

Results and Discussion

Factor that are a must for a successful MSP

1. **The need for a good, generous & patriotic people**, committing to work together with like-minded partners in the agricultural innovation platforms (AIP) agenda.

A number of generous donor organizations that provide financial resources to support the development partnerships in an AIP, organize meetings, facilitate regular communication, account to stakeholders and pay technical staff is necessary for successful outcomes. RUFORUM - MasterCard Foundation and SNV-Kenya provided the resources needed to set up the potato and irrigation platforms in Nakuru County. State agencies, i.e., the Ministry of Agriculture (MoA), Nakuru County provided technical input mobilized farmers and conducted training during field days. The County also co-finance a few of the platform meetings. ADC molo provided seed potato and technical input for their production, while KEPHIS provided seed certification support and organized exhibitions in farmer field days.

The private sector partners paid for exhibiting their products and provided some inputs such as seed and fertilizers. This was however in field days that had potential to attract over 120 farmers. The bigger agro-chemical dealers and farm machinery dealers would only commit to participate in farmer field days with large numbers of farmers (one agro-chemical company wanted over 500 farmers for them to participate).

1. Over the past 1.5 years, the Nakuru Potato platform has run many activities (Table 1) and attracted new partners. Many private sector partners co-funded platform activities especially field days, others gave free inputs and some gave equipments. The table below highlights some of the contributions.

Table 1: Sample partners co-funding field days

#	Partner	No. of Events	Cash contribution
1	County Govt. of Nakuru	2	KES 17,000
2	Equity bank	4	KES 52,000
3	Syngenta	2	KES 70,000
4	Egerton SACCO	2	KES 20,000
5	ECLOF MFI	2	KES 20,000
6	KEPHIS	2	KES 20,000
7	Davis & Shirtliff	2	KES 20,000
8	Jubilee Insurance	1	KES 10,000
9	Hi-Tech	1	KES 10,000
10	Doshi Co.	1	KES 10,000
11	Laser Engineering	1	KES 10,000
12	G-North	1	KES 10,000
13	Stockman Rosen/CIP	1	KES 10,000
14	TAGDEV	1	KES 10,000
15	Agventure	1	KES 10,000
16	Kick Start Intern.	1	KES 10,000
17	Sun culture	3	KES 25,000
18	Lachlan Africa	1	KES 10,000
19	Pioneer Seed	1	KES 10,000
20	Co-ELIB center, Egerton Uni	1	KES 10,000
21	Agro Science Park, Egerton	1	KES 10,000
22	KCB	1	KES 5,000
23	Euni Drip	1	KES 5,000
24	Build Africa (sponsored farmers)	1	KES 3,250
	Total		KES 387,250

NB: This list does not include many partners that gave in-kind support to events and activities.

Table 2: In-kind contributions to CaWSA-Centre by partners

#	Partner	Contribution
1	Nakuru County Govt.	Hosted meetings, technical expertise, courtesy bus
2	SunCulture	Rain maker 2 solar pump, trained 9 sales agents
3	Frigoken	Water Pan liner, seeds
4	ADC, Agrico, Stockman Rose/CIP, Lachlan Africa	Free seedlings, technical expertise
5	Case International	potato mechanization demo

NB: Three (3) projects helped scale outreach scope included: Nakuru – IAP and Climate and Water Smart Agriculture (CaWSA) - Centre grant from SNV Kenya and Meta Meta, NARIG-P (World Bank funding) – Seed Potato CARP+ (RUFORUM-MasterCard Foundation - 2017-2021).

2. Need for institutional reforms to house the MSP

From inception of the CARP+ seed potato platform, it was apparent that the project team would realize greater impact by creating synergy with the Nakuru Irrigation Acceleration platform (N-IAP). The two teams identified the areas of synergy and did many activities jointly. In total the two projects have over 35 partners that have participated in various activities. As the two platforms matured, it become obvious that there was need to have an institutional framework within which the platforms would be anchored and operate. In March 2019, SNV Kenya and Meta Meta, gave Egerton University an inception grant (US$ 1,219) to establish a Climate and Water Smart Agriculture (CaWSA- Centre. The CaWSA-C is a centre of excellence for community, student and industry engaged learning. It will offer training, research and outreach activities as well as engage in commercial production of seed and ware potatoes and rotation crops. The project teams are developing partnerships and mobilizing resources to expand the centre.

Universities will have to transform into becoming more flexible in their approach to agriculture research and extension engagement with communities and involvement of students, through experiential learning. They should have point-men/women housed within their institutions that are fully employed to support extension engagement with the community, industry and students. We should model along the Indian Kirshi Vigyan Kendra (KVK) or American University Grants Commission State Agricultural Universities where they allocate significant funding annually for training, research and agri-extension. In Punjab Agricultural University in India, one of the KVK gets over 1 million USD annually to support its extension research agenda in the rural areas.

Investment by the News media such as Nation Media and Inooro (Citizen TV) are now conducting field day events that have big budgets that Universities cannot manage. However, concerted effort in a MSP involving the most players in the agriculture sector, would yield greater impact and dividends.

It is evident that a number of agricultural private sector practitioners prefer to handle their own exhibitions and engage select (lead) farmers to showcase their products during the rainy seasons. Due to this there is a multiplicity of field days in the long & short rains with the same farming community attending one to the next meeting. Farmers tend to attend field days where they are assured of re-imbursements or compensation for their time and transport. Managing successful field days is therefore an expensive affair. We need to have exhibitions and training workshops where farmers are able and willing to pay for their participation. Studies to evaluate the factors that make farmers attend field days and how they can be made sustainable are necessary.

3. Set mutually beneficial objectives that interest participating partners

For a successful MSP, there is need to jointly design outreach activities (extension) to farmers in potato value chain (VC). The out-reach activities should aim to financially support agri-business growth for all players along the VC and not only the farmer. Many of the activities mooted by different organizations are apparently centred on the "small scale farmer" because the donor community is biased towards them. The middle and large-scale farmers are not considered for promotion. However, middle to large scale farms are the ones able to test and adapt innovations and technologies at their own costs, therefore promising profits to the product seller. However, most small-scale farmers are not able to adapt innovations, unless they are financially supported by the projects, or have financial resources from elsewhere (e.g., relatives). For these reasons, projects end after the donor pulls out, because the client base is so small financially, to be able to sustain exhibited innovations (e.g., drip irrigation). Mutinda (2020) reported that farmers able to sustainably invest in seed potato business in Nakuru, had on average annual income of more than US$ 5,750. The agricultural development agenda (and projects) should therefore categorise the different household incomes and discriminate on interventions to promote in supporting each value chain sector / category. This should be done in cognizance with their living circumstances.

4. Identify & recruit sincere and hard-working Co-workers to serve (foot-soldiers)

It is of critical importance to develop terms of reference for the steering committee and platform and Identify platform host and facilitator. The platform host should have a good and credible reputation so that the MSP agenda is largely accepted by the stakeholders and communities being targeted. The setting up of a core team of people (foot-soldiers) should be of people with the mandate to work on at least one of the value chain sectors. In this manner they will give quality time and not deviate from their mandate (e.g., input providers, transporters, processors, credit providers, off-take markets, etc). Other members of the core team should have necessary skills, i.e., writing reports, proposals, communicating, technical skill and facilitation.

The core team has to be hard working, committed and sincere in achieving the planned outcomes. Running a multi-stakeholder platform requires that the facilitation team is in constant communication with partners, is regularly shopping for new opportunities. Organizing events requires dedicated staff to follow up on all the details and communication to partners.

5. Having strategic partners such as the County Government, a University or Technical and Vocational Education Training Institution (TVET) or a local capacity builder or a government authority (e.g., KEPHIS) can be very helpful in accelerating / fast tracking / jump-starting project activities and reaching far and wide in a short duration of time. To set up a multi-stakeholder platform that will have a wide reach and be sustainable, we need to take advantage of the strength of each partner. We need to continually network to enrich the quality of knowledge-exchange and value that each member gets.

6. Be very patient & flexible

At times things don't work on schedule. Team members need to be very patient, accommodating and willing to go the extra mile. Unfortunately, the private sector lacks these attributes. When finances are delayed and implementation has to be on time, you will need to sources funds from other sources or partners and even use your own personal resources with the hope to get reimbursed.

7. Maintain accountability to partners

Good record keeping is important especially accounting for expenditure to donors and superior offices. Having an efficient financial and project reports (officer/assistant) as scheduled in MoU is key to getting subsequent funding. We need to involve partners in planning activities and events so that they own the event. We must develop the ability to communicate regularly and sincerely. This is highly lacking in African settings, we haven't developed the skill of writting. We need to write periodic reports to platform members and stakeholder as a means of keeping records and communicating.

Conclusion: Sustaining and Scaling-up of a MSP

While by nature projects have a start and finish timeline, a multi-stakeholder platform should continue so long as members are addressing critical value chain issues and getting value. Egerton University and partners have shared these lessons on establishing and scaling a MSP outreach and impact that is hopefully going to be useful of other organizations that want to scale up their impact; in summary, these are:

- Partner with the County government for Ministry of Agriculture as they have the mandate to grow the sector/value chain and have grass-root contacts on the ground
- Cost-share with other projects initiatives in host organization to realize cost efficiency and expand impact
- Invite the private sector partners to pay for some costs while they exhibit
- It is more effective to work with farmer cooperative to host the demos and field days. They have financial and human resources more than farmer groups, or model farmers' outreach. They also have a good hearing from private sector partners and state agencies

Future Priorities of the Nakuru Potato MSP

While the Nakuru potato platform has achieved some milestones, there is still a lot that remains to be done to better coordinate production and marketing and improve food safety. The major priorities to address next year are outlined below:

1. Identify and scale up production of few high-quality potato varieties
2. Create a better understanding of what and who markets and co-creates market linkages are:

In 2019, farmer leaders were facilitated to visit the KDF factory in Gilgil, Njoro Canning Factory and to have meetings with Twiga foods and Sereni fries. Farmers were also supported to visit the Karen organic farmers market in Nairobi and a one-day training at Baraka Agriculture College.

Despite these introductory efforts over the years, small scale farmers still lack access to these markets. They still ask the question, "where is the market" and repeat, "The markets are elusive to us, we produce but they don't buy". I have realized that we need to have a different way of thinking, a paradigm shift that enables us to realize that "the farmer is the market". He is the one that needs to develop a quality potato product; he is the one to remain consistent in producing quality products; he is the one required to increase his volumes to meet the buyers needs, he is also the one to offer it at an affordable price so that the processor makes a profit too and consumer eats a healthy meal, in season and out of season; he/she needs to package himself in an attractive manner as to attract buyers". When we consider all these points, buyer, whom we wrongly think is the market, will invest in the farmers produce. Unfortunately, the small-scale farmer is not able to become the market place we all are demanding him to be. It's only the large-scale farmer, mostly with foreign investments, that is able to achieve this kind of a market package (e.g., flower farms in Naivasha). No wonder, no one wants to be the small-scale farmer. We expect of him what he cannot be. We train him but he doesn't transform. In order to get the transformative agri-business entrepreneur, we will need to target farmers with a higher revenue turn-over of not less than US$ 5,750 annually (Mutinda, *et al*., 2020).

Table 3: Examples of Co- Investors

A. Partners that paid to exhibit in field days:
- County Govt. – 1 event, Equity bank – 3 Events, ECLOF MFI – 2 events, Syngenta – 2 events , KEPHIS – 2 events, Davis & Shirtliff – 2 events, Jubilee Insurance – 1 event and others; Hi-Tech – 2 events

B. Partners that gave equipments:
- SunCulture – Solar pump kit, Frigoken – water pan liner, G-North assisted in fitting it

C. Egerton projects that co-funded activities:
- Nakuru Irrigation Acceleration Platform, Co-ELIB center co-funded exhibition cost, Agro Science Park co-funded exhibition cost; TagDev supported students farm tours

D. Private companies supporting student & farmer training:
- Case International – potato mechanization, Frigoken – French bean farming

E. Potential collaborators who have shown interest
- Corteva (Du-pont & Dow) – student internships, IFC/World bank – potato value chain, Stihl – Pumps & power saws; Agrimech – potato mechanization, climate smart villages,

F. Projects that helped scale outreach scope
- Climate and Water Smart Agriculture (CaWSA) - Centre grant from SNV Kenya and Meta Meta; NARIGP (World Bank funding) – Seed Potato CARP+ (2019-2021).

G. Upcoming projects and partnerships
KCSAP (World Bank) validation of TIMPs in Nyandarua, Nyeri and Elgeyo Marakwet Counties (2020 – 2021)

H. NUFFIC (FutureWater): Crop models and remotes sensing for water management in agricultural systems (2021) training (2021)

The platform will continue to support farmer cooperatives and organizations to strengthen existing relationships and develop new ones for improved prices and stimulate increased production; promote food safety and traceability; support the use of ICT to improve VC efficiency in partnership with Bloom India and Green Edge digital Africa to pilot an ICT platform that will link farmers to input and output markets using a smart phone enabled ICT system. We will continue to engage the youth through students training within the University and in partner communities and private sector companies as given in Table 3 above which gives a synopsis of partners who have supported and are willing to support the platform.

Acknowledgement

We are grateful to the donor community of RUFORUM-MasterCard Foundation and SNV-Kenya for funding the establishment of the two MSPs and providing technical support and training in achieving these. I am grateful to Egerton University too, especially the Division of Research and Extension and CHS department for providing the facilities and personnel necessary to achieving the objectives of the projects.

References

1. KEPHIS. (2016). Seed Potato Production and Certification Guidelines. Nairobi: KEPHIS.
2. KIT, 2018. Smart Water for Agriculture: Irrigation acceleration Platform Guidelines. Creating and facilitating stakeholder collaboration for accelerating farmer-led irrigation development. Amsterdam: Royal Tropical Institute, KIT.
3. NPCK. (2017, November 23). Potato Variety Catalogue. Nairobi: NPCK. Retrieved November 23, 2018, from https://sokodirectory.com/2017/11/status-potato-farming-kenya-contribution-economy/
4. Kaguongo, W., Maingi, G., & Giencke, S. (2014). Post-harvest losses in potato value chains in Kenya:Analysis and recommendations for reduction strategies. Bonn: Internationale Zusammenarbeit (GIZ) GmbH.
5. Kaguongo, W., Ng'ang'a, N., Muthoka, N., Muthami, F., & Maingi, G. (2010). Seed Potato Subsector Master Plan for Kenya (2009-2014): Seed potato study sponsored by GTZ-PSDA, USAID, CIP and Government of Kenya, Ministry of Agriculture. Nairobi: National Potato Council of Kenya.
6. Mutinda, R.M., Gathungu, E.W., Kibe A.M. and Wambua, D.K. (2020). Factors Influencing Agripreneurs' Investment Decision and Level in Clean Seed Potato Enterprises in The Highlands Of Kenya African Crop Science Journal, Vol. 28 Issue Supplement, S1 Pp. 165 – 174. ISSN 1021-9730/2020, www.Ajol.Info/ and www.Bioline.Org.Br/Cs
7. Parker, Monica (2018). Kenya accelerated value chain development program, (avcd) Root crops component: Potato apical rooted cuttings to enhance seed potato production. International Potato Center (CIP) publication.

Biography

Antony M. Kibe is a trained Agronomist specialized in nutrient and water management for irrigated wheat (PhD) from the Indian Agricultural Research Institute, New Delhi, India. I have engaged in best crop production practices research of various field crops, i.e., maize, wheat sorghum, oats and rice; chickpea, beans and cowpeas and currently Irish potato value chain. I am an Associate Professor of agronomy and been an associate dean, faculty of agriculture, Egerton University, Kenya. Have supervised over 10 MSc & 3 PhD students, published 30 peer reviewed journal articles in local and international journals.

 Areas of research have varied from **pre-breeding** work to evaluation of growth and yield; yield prediction using **crop production models,** developed for various crops under varying crop management practices; and **agricultural value chains analyses**.

 I have undertaken the following **funded research projects & collaborations**

1. **Establishment of a Climate and Water Smart Agriculture Center (CaWSAC) at Egerton University,** Tatton agricultural Park (TAP) sponsored by SNV-Kenya 2019. KShs. 1,113,450 (11,100 Euros).
2. **Short term Scholar in LSU (3rd – 23rd Oct 2016) and 14th – 31st Oct 2018) USDA Scientific Cooperation Research Program - 2016/17 & 2018/19 grants**: Additional Capacity Building to Alleviate Postharvest and Marketing Constraints Facing Small-Scale Horticultural Crop Farmers in Kenya". US $ 80,000 – ended 2019.
4. **Enhancing access to high quality seed potato for improved productivity and income of smallholder farmers in Nakuru County**. Principal Investigator (2017-21). RUFORUM - MasterCard Foundation (US$ 200,096).
5. Coordinator of the **Irrigation Acceleration Platform for Smart Water for Agriculture** in Nakuru County, Kenya, collaboration with SNV Netherlands Development Corporation; 2017 – ongoing (EURO 65,000).

 I have been a **Consultant** for the Food and Agricultural Organization of the United Nations (FAO) on evaluating the **Adoption (or Non Adoption) of Drought Tolerant Crops**, amongst others.