End-Evaluation Kenya Market-led Dairy Programme 2019

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Introduction

On the 12th of September, PUM organised an evaluation workshop to reflect on the contribution of PUM experts on the Kenya Market-led Dairy Programme (KMDP) that ran from July 2012 until August 2019. This paper discusses the experiences of the senior experts supplemented with the results from SNV’s KMDP Close-Out Magazine and KMDP II Evaluation Report. The focus of the paper is on the impact of the PUM input in the programme areas in which PUM participated and not on the overall programme areas.

Background and context
The dairy sector is the largest agricultural subsector in Kenya in terms of income and employment creation. With income and employment spreading over farmers, transporters, traders and vendors, employees of dairy societies, milk processors, input and service providers, retailers and distributors. In 2013, the dairy sector contributed 4% to the overall GDP and 12% to the agricultural GDP. In total, there are over 18 million-smallholder milk producing households whom produce 80% of the annual milk production in Kenya. The dairy market experiences a growing demand because of an increasing population, a growing middle class and urbanisation. In order for the dairy industry to keep up with the growing demand, it has to tackle the barriers of low productivity and high cost of raw milk production, seasonality, low quality feeds and forages, milk quality issues, a huge knowledge and skills gap and lack of inclusiveness in the dairy value chain.
Programme
SNV Kenya implemented the KMDP in July 2012 in order to increase the growth rate and competitiveness of the dairy industry. With the highlands of North Rift, Central and Eastern Kenya identified as high potential dairy areas due to the very conducive climate for dairy cows. The goal of the programme was “to contribute to an improved business and investment climate of the Kenyan dairy sector” and the programme themes were as follows:

1. Practical skills and farm management
2. Feed and fodder
3. Milk quality
4. Functional dairy value chains
5. International linkages

The group of five experts consisted of:

1. Jaap de Vrij
   His expertise focused on cultivation of fodder crops, soil preparation and conservation agriculture, with much attention to ploughing, machine operation and crop management.

2. Halbe Klijnstra
   The focus area of Halbe Klijnstra was on the North Rift where he shared his expertise on total farm management including feed management, calf rearing, record keeping, maize silage and grassland/pasture management.

3. Tseard van der Kooi
   The trainings from Tseard van der Kooi focused on farm management, feeding, calf rearing and fertility/genetics in Meru County. Additionally he provided advice on the development of the Meru Union Breeding Strategy and was key in facilitating linkages between Meru Union and CRV. Together with Frans Ettema he facilitated a trade mission of Meru Union to the Netherlands and an exchange visit of the Kenya Dairy Board. Additionally, Tseard enabled the piloting of Brachiaria varieties in Meru.

4. Frans Ettema
   In Central Kenya Frans Ettema developed in collaboration with Periometer the Dairy Farm Benchmarking tool and training courses for Farm Managers. Additionally Frans gave instrumental support to KMDP clients and KMDP management on strategic issues. Moreover, he was co-author of the feasibility study for a Commercial Forage Production and Service Centre, and the author of the report assessment of KMDP forage interventions in North Rift.

5. Hink Perdok
   The expertise of Hink Perdok lies in animal/dairy nutrition and ration formulation. He introduced Rumen8 to the programme and remained the linking-pin between the Rumen8 team and the software developers in Australia. Simultaneously, he networked for KMDP/Rumen8 at parties such as CIAT, ILRI, Department of Livestock, and KALRO. In the Netherlands, he facilitated B2B linkages in the area of feed testing.

‘Five senior experts executed 52 advisory missions and provided expertise in three main areas’

PUM joined the programme from the start, yet, only focussed on the themes practical skills and farm management, feed and fodder, and international linkages. Five senior experts executed 52 advisory missions and provided expertise in three main areas:

1. Technical advice on total farm management, forage production and feeding to KMDP clients;
2. Training, coaching and business development support for KMDP’s dairy advisors; and
Overall, all five experts operated with a dual purpose by not only focusing on farmers, but equally on the dairy service infrastructure and capacity building of local consultants/extension workers and organisations (cooperatives, processors, input suppliers and service providers). Additional deliverables of the experts are the development of diagnostic tools, training and instructional materials, SOPs, power point presentations and other reference documents. Supplemented with the facilitation of four Business Links in 2014, 2015, 2016 and 2018. Here the KMDP dairy consultants received the opportunity of one-week induction, training and networking in the Dutch dairy sector.
PUM has played an important role in improving the accessibility of affordable, high quality and practical training and information to farmers and other actors in the value chain. Over the course of 7 years, PUM experts trained a group of dairy advisors into dairy professionals, whom advice smallholder lead farmers and medium and large-scale farmers in dairy farm management, on the most optional feed ration for different categories of cattle and monitoring key performance indicators on the farm. Simultaneously, farmers, farm managers, extension staff and other target groups developed practical skills on Practical Dairy Training Centres during a one-week structured training provided by PUM experts. Additionally, the network of the local dairy advisors expanded due to the linkages made by PUM experts with Dutch input suppliers and service providers with an established business in Kenya.

Outcomes
The outcomes for the training, extension and farm advisory services intervention are as follow:

- 15,730 people received training, extension and farm advisory services. With a division made between men and women being 7,415 men and 8,315 women;
- 7,535 dairy farmers increased their income, with 3,542 male farmers and 3,994 female farmers;
- 136 trainers, extension staff and dairy advisors improved their skill level. Out of the total number 87 were male and 49 were female; and
- 28% of the 314 expanded smallholder lead farmer were youthful farmers, a total number of 89 youthful farmers.2

Positive results
PUM experts are positive over the results and truly enjoyed to have witnessed the growth path of people. Several local dairy advisors have found a new job shortly after the programme where they utilise the gained skills and knowledge from KMDP. The experts acknowledge that the productivity of farmers have increased. However, the level of growth depends on the speed of the farmer to implement the new techniques. Some farmers are quick to adapt while other take their time to explore before adapting.

Climate change
Throughout the programme, climate change was a focus point. PUM experts spread the message that with higher-feed efficiency, better soil use and less waste of manure you already gain in reducing the negative effect on the environment. Additionally, a pilot attempted to quantify the negative effect on the environment with a substantial decrease in the emission of CH4. However, there is no quantification for the effects of CO2 and N2O.

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2 Evaluation of the Kenya Market-led Dairy Programme II (KMDPII) – Jan Willem Molenaar (Aidenvironment), Emma Blackmore (research associate IIED) – June 2019
Improvements
In regards to employment, PUM experts agree that KMDP created jobs in the area of local advisory services and uplifted job levels. Generally, the local dairy consultants had adequate basic theoretical knowledge but lacked practical skills in dairy farming and in general extension work. Through additional theoretical and practical hands-on training, combined with numerous farm visits the capacity and quality of the work the local dairy consultants improved significantly.

Conclusions
Main conclusions and lessons learned from the component Training, Extension, and Farm Advisory Service:
• Witnessing the growth of participants and the ability to build relationships motivates PUM experts;
• The outcome of the intervention also depends on the willingness to implement recommendations;
• Climate effects were difficult to quantify however, improving farm practices lead already to a reduction of the negative effect on climate;
• KMDP created jobs but additionally uplifted job levels;
• PUM experts overestimated initially the practical skills of participants;
• It was a challenge for the PUM experts to disprove current dairy farming practices and introduce new ideas and concepts; and
• Cultural aspects constrain the intervention to reach a higher level of impact (e.g. for Kenyan farmers cattle numbers are frequently more important than productivity and profitability).
2. Quality feed and fodder

KMDP focused on good practices on forage production and preservation for smallholder, medium and large-scale dairy farms. In this regard, PUM played an important role in the establishment of the Service Provider Enterprise model. The training centre trained farmers on the subject of the maize trains and supports groups of youth in the establishment of silage making enterprises that assist farmers in harvesting, chopping, and ensiling maize, oats and other suitable crops at a fee. Very important was the adaptation and introduction to the Kenyan situation of a feed ration calculation software called Rumen8 by one of the PUM experts.

Outcomes

• The outcomes for the quality feed and fodder intervention are as follows: Rumen8 pilot implemented at 25 farms as an innovative and scaling up fodder solution facilitated in the market. Resulting in a Feed Library with over 225 feeds and forages grown in tropical regions and adapting the software to the local needs in Kenya and/or East Africa;
• For the supply of practical dairy training in Kenya Rumen8 training modules are introduced at University of Nairobi; and
• 145 smallholder farmers and 45 medium scale farmers on average increase their milk production by 26%.

In addition, PUM experts promoted new plant varieties such as Brachiaria and Panicum which resulted in an improve production of forage crops. Moreover, the shared expertise resulted in an improved cultivation and conservation of feed and fodder and in a higher awareness of importance and distinguishing levels of quality in feed and fodder. A validated and independent feed laboratory would supplement the raised awareness of high quality forage and play an instrumental role in the availability of affordable high quality forage. However, developing a commercial business model for such laboratory is challenging.

Increased production

The implementation of Rumen8 contributed to the optimisation of cow rations and improved profitability. The pilot with Rumen8 resulted in a significant impact in terms of increased production and margins above feed costs at the farms that implemented the recommendations for improved feed rations. Rapid gains in milk yield and in efficiency of conversion of feed into milk were established. It is important to note the attribution of the laid foundation on forage crops and farm management during the first phase of the programme to the success of Rumen8. Without this foundation of knowledge and awareness, Rumen8 would not have been as successful as it was during the second phase of the programme. Based on the successes achieved with Rumen8 in Kenya, SNV is now introducing the software to the dairy sector in Uganda and Ethiopia.

³ Evaluation of the Kenya Market-led Dairy Programme II (KMDPII) – Jan Willem Molenaar (Aidenvironment), Emma Blackmore (research associate IIED) – June 2019
Unfortunately, the sustainability of the usage of Rumen8 for farmers is uncertain. Currently the software is freely available and awarded grants enabled the establishment of the library. At present, no financial resources have been committed to assure the maintenance and further development of Kenyan/East Africa version of Rumen8.

**Increased yield of milk**

Overall, the output in the production of milk has improved in terms of increased yield of milk against lower feed costs. However, PUM experts noted that regardless of the increased awareness on quality feed and fodder, quality does not determine the price. As the price is primarily determined by quantity and not based on quality. Other constraints are the low milk price partly resulting from milk powder imports from the EU. Large-scale dairy farms are selling cows due to the low milk price; smallholder dairy farms are still able to take a loss because not all cost are taken into account in their decision-making.

**Lessons learned**

Main conclusions and lessons learned from the component Quality Feeds and Fodder:

- Fodder cultivation, production and conservation increased in the course of the project;
- Service providers developed e.g. maize train, support groups for silage making;
- The level of awareness for quality feed and fodder is established but not yet the availability of quality feed and fodder in the market;
- A validated and independent feed laboratory would be instrumental to increase impact, however, challenged by developing a commercial business model;
- The introduction of Rumen8 in Phase 2 built further on and benefitted from the improved fodder production and conservation success of phase 1 and enabled significant improvements in terms of increased production and margins above feed costs;
- The Rumen8 ration calculation programme will also be used in the SNV dairy programmes in Ethiopia and Kenya. However, the availability of financial resources for maintenance and further development of Rumen8 is still uncertain;
- A training programme for PUM experts in the use of Rumen8 is in the planning;
- Improved feed quality is not reflected in the market price of feed, in trade quantity is still more important than quality; and
- Current milk price in Kenya is low, due to imports of milk powder; this affects at present more the large-scale farmers compared to the smallholders.
3. Women inclusion

KMDP placed a special focus on the inclusion of women to the programme. Resulting in the following outcomes:

- 50.7% of all participants (trained, trainers, advisors, linked) were female;
- Out of the total 162 entities 42 were female-led entities (26%); and
- 53% of the members in dairy societies are female.4

The emphasis on women plays frequently a larger role on smallholder dairy farms. Yet when looking at the larger scale dairy farms, they see that the better run dairy farms often have female owners or managers. Nevertheless, PUM experts did not place extra efforts on the inclusion of women to the programme. On the contrary, the experts experienced ratios of 60% men and 40% women during the facilitated trainings. They also noted that it is within the culture that the men are responsible for the land and cows and the women are responsible for the milk. For that reason, Meru Union places a strong focus on having women in management positions and that all women have a bank account so that they get paid for the milk.

Main conclusion and lesson learned from the component Women inclusion:
- Women have an important role in the dairy industry in Kenya, many were trained by advisory staff and PUM experts during the programme, however women were not a special focus group during the PUM missions.

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4 Evaluation of the Kenya Market-led Dairy Programme II (KMDP II) – Jan Willem Molenaar (Aidenvironment), Emma Blackmore (research associate IIED) – June 2019

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4. Aid and trade

One of the tasks for PUM was the facilitation of the B2B agenda of KMDP. In this regard, PUM experts facilitated four Business Links and an exchange visit to the Netherlands outside of PUM, 50% paid by the farmers. Each Business Link facilitated eight participants from Kenya instead of two participants. A higher number of participants was more beneficial and convenient for the receiving companies in the Netherlands and for the participants. The participants were able to exchange gained ideas and insights amongst each other. However, the amount of trade between the local dairy advisors and the Dutch private sector as a result of the facilitated Business Links is unclear. Nevertheless, the facilitation of the Business Link stimulated the cooperation between the five senior experts and allowed for a better tuning of the missions in KMDP. The only remark is that the current format of Business Links is not programme friendly with little flexibility from the organisation to adapt to the demand of the programme. It took quite some effort and persuasion to convince PUM of to facilitate Business Links with more than the usual number of 2 participants and more Business Links per client in case of a programme.

The end-evaluation report from SNV reports to have supported 16 Dutch owned businesses with scoping and/or planning for investment, trade or service provision. Supplemented by a substantial increased demand for sector information and market intelligence from Dutch investors or companies.

Lessons learned

Main conclusions and lessons learned from the component Aid and Trade:

- Business Links with more than two participants is beneficial for Dutch companies and the participants;
- Business Links with more than two participants stimulates collaboration among PUM experts;
- The current Business Link format is not programme friendly;
- Visits by the local Dairy Consultants to the Netherlands and exposure to the Dutch Dairy Farming has increased the impact of the work of the PUM experts;
- The PUM experts initiated and organized four Business Links for linking with Dutch companies, networking and training. Altogether the SNV-KMDP linked with 16 Dutch owned businesses; and
- A low level of flexibility from PUM towards adapting to the demand for the implementation of the Business Link.

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The programme manager from SNV, the PUM sector coordinator and the country coordinator from PUM defined the programme objectives at the start of the programme. Based on a fact-finding mission of the PUM sector coordinator and one PUM expert. The programme extended in 2016 for 3 years after a mission of the sector coordinator. Throughout the programme, there was close contact between the PUM experts, country coordinator, sector coordinator and the programme manager with annual debriefing and planning sessions to discuss progress, exchange experiences and to align missions. Especially with regard to the development of Rumen8 extra time and effort was placed that exceeds the average time spend by a PUM expert.

SNV’s role
Throughout the programme, SNV was in the lead regarding the planning, implementation and execution of the programme. For the experts the practical role of PUM as an organisation was limited to making travel arrangements and such. Moreover, PUM experts directly communicated with the SNV team, which the technology advancements over the last years additionally enabled with tools such as Skype and WhatsApp. However, this also led to a shift in loyalty or perhaps acknowledgement by the PUM experts from PUM towards SNV. As SNV operated in practice also as the local representative for PUM and arranged all preparations and after care. Nevertheless, the overall partnership between PUM and SNV is experienced positive. SNV was pleased with a good preselection of experts done by PUM and the opportunity to choose out of multiple CVs. The collaboration on preparing the Term of Reference and the alignment of expectations at the start of the programme between SNV and PUM allowed for a good cooperation throughout the programme.

Debriefing
The information requested in the debriefing forms (no. of employees, financial figures etc.) as well as the standard PUM report was found unsuitable for this type of programme. As a result, not all experts regularly completed the debriefing forms and prepared mission reports. In the 2nd phase of the programme, there was a provision for extra PUM missions on special subjects to SNV and partners or service providers of the KMDP-SNV project. Only two missions were realized to two existing companies, no requests were made by any of the providers.
PUM also received a few requests for advisory missions from dairy farmers and cooperatives in the working area of KMDP-SNV, PUM declined these missions and requested KMDP to approach and assist these applicants. PUM was not able to follow-up the result.

Lessons learned
Main conclusions and lessons learned from the component Partnership PUM and SNV
- Expectations were aligned by both parties at the start and updated for the 2nd phase of the programme
- Annual debriefing and planning sessions with PUM experts, country coordinator, sector coordinator and programme manager were arranged in order to exchange experiences, insights and to align activities;
- In the experience of the PUM experts, then contribution of PUM was primarily administrative support and making travel arrangements. More credit is appointed towards SNV;
- In practice SNV operated as the local representative;
- SNV was very happy with the quality of the experts provided; PUM made a good pre-selection of experts and provided SNV with choices during the selection phase;
- PUM debriefing formats and reports are at present not suitable for programmes; and
- There is so far no demand from the KMDP service providers and partners for missions from PUM experts.
6. Key points of the evaluation and recommendations

The above drawn lessons lead to the following key points:

- The continuity of the programme, the ability to build relationships and the positive response have been a major motivation for the PUM experts;
- Jobs were created by KMDP, however, a larger number of job levels were uplifted due to the programme;
- Practical skill levels of farmers and adviser consultants, cultural aspects and traditional dairy farming practices were a challenge to overcome and constrained the level of impact of the programme;
- Market price mechanisms based on quantity rather than quality feed and fodder constrain the level of impact. Even though the awareness level of the participants have increased;
- Rumen8 is successfully implemented as a tool for production and gross margin improvements, however, a solid foundation of knowledge on forage crops and farm management is needed to successfully work with the software;
- The current low milk prices are a result of external market factors and limit the increase of milk production;
- Business Links with more than two participants show beneficial effects for the Dutch private sector, participants and PUM experts;
- Throughout the programme there was a good collaboration between PUM and SNV;
- PUM as an organisation had a limited role in the execution of KMDP, planning and organization was primarily in hands of SNV. Annual debriefing and planning missions with the complete PUM team and the programme manager stimulated collaboration between PUM and SNV as well as between the PUM experts;
- The Business Links formed an essential part to establish the present presence of Dutch companies in the dairy sector;
- PUM procedures for debriefing and reporting were not rally applicable for the PUM-SNV programme and resulted in increased orientation of the experts toward SNV-KMDP;
- Adapt the formats of debriefing forms and mission reports that are used within a programme; and

So far, the programme has not resulted in an increased demand for PUM missions in the sector. The Local representatives could target participants, particularly Service Providers for such missions. PUM experts indicated a continued need for expertise on feed conservation and milking machine operation and maintenance.
Annex 1:

More results on the Rumen8 pilot can be found in the Thesis 'Integration of diet formulation software in dairy farm coaching in Kenya. A pilot study' by Dagmar Braamhaar.