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Extent of ICT Adoption by ACP Farmers: The Case of Somaliland

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The Technical Centre for Agricultural and Rural Cooperation (CTA) is a joint international institution of the African, Caribbean and Pacific (ACP) Group of States and the European Union (EU). Its mission is to advance food and nutritional security, increase prosperity and encourage sound natural resource management in ACP countries. It provides access to information and knowledge, facilitates policy dialogue and strengthens the capacity of agricultural and rural development institutions and communities.

CTA operates under the framework of the Cotonou Agreement and is funded by the EU.

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About the author

Abdirizak Mohamed Warsame has background education and technical expertise in agriculture and pastoral sectors in the Horn of Africa developed over nearly two decades. He has been involved in technical cooperation projects with FAO Somalia, ILO Somalia, German Agro Action, VSF Germany, DAI and other organizations. He developed an interest in ICTs for agriculture based on success stories of ICTs linking farmers to market information in agriculture and finance in parts of Somaliland.

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Executive summary

This working paper is a summary of the recent adoption of ICT for agriculture for effective production of honey and promotion of linkages between producers and consumers. The adoption of beekeeping practices and its application technology has expanded. To date, a number of honey producer cooperatives and companies are serving more than a million consumers. This case study provides a clear view of the benefits, challenges and limitations of ICT and the progress in smallholder farmers' development.

ICT is important for Somaliland agriculture development and requires a long-term effort for its development. However, ICT and other technology for farming development are limited due to the instability of the Horn of Africa, particularly Somalia. ICT use has increased especially in terms of use of farmer mobile phones for communication and a few other applications. Expanding use of ICT has moved forward in the last two decades for smallholder farmers, although there has been inadequate provision of communication materials in training and mobilisation sessions in most development projects.

The Marketing Assistant Product Promotion project funded by the EC has promoted the application of ICT, including introduction of trade fairs, honey shows and radio clips, as well as fact sheets, biweekly business journals translated into both English and local languages. Trade fairs and their participation by smallholder farmers has become a regular event since then.

A beekeeping project funded by the EC and implemented by PI that used ICT in the project implementation included a number of honey trade fairs, beekeeping training courses, field visit days, honey shows, hand-outs, posters, films, videos, audio cassettes and publications with illustrations and translation into local languages; more than 5,000 beekeepers succeeded in starting beekeeping activities in the country through this initiative.

Honey trade fairs improved the price of products from US$8/kg to US$10/kg and audio-visual training materials received from project trainers were used to teach smallholder farmers lessons and activities on beekeeping. Simplifying technical topics and translating the material into local languages worked well for training of smallholder farmers. Both visual material and audio with illustrations training materials were used in the Somali region for the first time and were very effective. Proper application of all learned lessons from project trainings resulted in improved production of honey and bee products in the Horn of Africa.

Publishing of articles on beekeeping in local newspapers is continuously increasing; the readership are mainly people in urban areas and smallholder farmers in the main towns. During a trade and NGO fair in Somaliland some information paper/publications were distributed to visitors free-of-charge. Provision of technical assistance to develop the productivity of the agricultural sector through the use of ICT were tested and sharing of knowledge between farmers was increased. The aim was to provide skilled technical assistance to farmers in the short term. We held discussions to come up with solution to farmers' problems.

Programme context

The aim of the programme was to improve the livelihoods of poor households through income diversification through beekeeping. At the start of the programme the overall situation was assessed including the production, quality, reliability and price variation from traditional suppliers and their performance with regard to the product and by-product.

Network and relations among the honey hunters had its constraints and challenges which hindered the movement of stock, although some locations and groups are interlinked based on a shared common interest and business. Continuation of the production and market linkages were encouraged and empowered through training of traditional honey hunters and initiation of beekeeping activities, promotion, mutual agreement of both sides and coaching and guiding of producers, suppliers and retailers.

The intervention was started in a few selected areas in the mountains and highlands of Golis range and particularly in locations were honeybees lived in the wild and areas where local, traditional beekeepers were active. Training resources were prepared and training of trainers were commenced. The training materials were selected and based on the use of relevant ICT.

The project introduced improved beekeeping tools (different types of hives, bee suits and packaging material) to expand the production, develop marketing of honey and ensure the sustainability of beekeeping activities in the area. Established carpentry workshops owned and run by beekeepers received training courses in production of beekeeping equipment (i.e., different types of beehives and related equipment). Some beekeepers learned to produce beekeeping suits through tailoring enterprises; some beekeepers were trained in the production of smokers. Different ICT methods were used during the training courses.

Situation analysis

Several interesting findings were collected through standard research methods including discussions of honey types.

Table honey from honeybees was found to consist of three types:

- liquid honey
- set/creamed/crystalised/sugared/whipped
- comb honey

Types of honey actors in the value chain

- Beekeepers, honey hunters, artisans (carpenters, tailors, blacksmiths), retailers, shopkeepers. transporters and other service providers including trainers

Marketing, packaging and processing

The provision of processing and packaging material for honey are ongoing through project support; more recently, traders have begun to purchase and make available the processing and packaging materials such as bottles and honey refining equipment to farmers.

In the training courses most of the beekeepers were trained in honey refining practices which were locally accessible and available to beekeepers and honey hunters; they learned both theory and practice with the support of ICT training materials such as honey refining practices lessons in the training manual of the beekeepers which is standard manual for all Somali beekeepers written in English and in local languages.

Honey traders were trained in refining and ensuring the quality of the honey to avoid dilutions and adulterating with sugar and other substances. Running a series of honey shows, films and trade fairs improved market accessibility and linkage of traders and producers as well honey traders and consumers.

Creating trademarks, labels and packaging system of active, emerging honey companies like Malabo, Golis and Sanag Honey Cooperatives played a marketing role and improving the relationship between honey value chain actors.

Overseas market assessment was conducted by the project; it investigated the demand level, market opportunities and specific types of honey products that exist in neighbouring countries including Gulf countries, especially UAE and Saudi Arabia.

Honey sales and purchases transactions are always done in cash and usually at farm gate sales. There is limited time to transport fresh honey from honey sales kiosks and beekeeping places.

Production of honey is seasonal and happens after two rainy seasons in the country, but the increase number of hives owned by beekeepers means that more honey is being produced and harvested. Most beekeepers owned an average of five top bar hives, though some of the beekeepers had mud and stick hives, stone hives and long straw hives. Traditional milk pots were also used for beekeeping in some areas. In addition, honey hunting practices are estimated at 4–5 bee holes in the mountains; honey hunter harvest 60–80 kg per hole per harvest. Estimated harvest per hive are 10–15 kg depending on the colony number and the foliage/vegetation that bees collecting nectar from. Bees collect nectar from flowers that can be:

- monoflora (single flower)
- polyflora (many flowers)
- honeydew honey

Overall estimated honey production in each harvest in Somaliland is 250,000 kg from a total of 16,000 hives and an estimated 200 mountain holes used by honey hunters in each harvest season. This estimate provides 500,000 kg of honey per year at a price of US$12/kg – which is equivalent to US$6,000,000 per year for honey production

Distribution: Expanded number of small companies and cooperatives

Establishment of small groups, companies and cooperatives was part of the growth of the beekeepers network in the project area. More than 15 groups emerged a short time after intervention of the project; they consisted of rural and urban honey hunters and new beekeepers.

- Somaliland beekeeping development network (Hargeisa)
- Sanag beekeeping association (Erigavo)
- Golis honey company (Erigavo)
- Malabko (Mullah and Awed local beekeeping company) (Erigavo)
- Ilad Garo honey producers (Erigavo)
- Shifo honey producers (Erigavo)
- Daallo honey group (Erigavo)
- Almadow honey groups (Badhan)
- Boon honey groups (Boon–Awdal)
- Borama honey groups (Borama)
- Royal honey groups (Erigavo)
- Naasa hablood Beekeeping associations (Hargeisa)
- Hargeisa honey groups (Hargeisa)
- Beer honey cooperative
- Himan beekeepers association

Competitive segment

In the first quarter of the year in different regions of the country, there was an increase in production from an increased number of beekeepers and honey hunters. Trade fairs and honey shows provided beekeepers and honey hunter with their first and/or refresher training in beekeeping and producing beekeeping equipment They also received natural resource management training using ICT applications.

Honey production in each region varied according to the number of beekeepers and honey hunters and the climate they lived in. There are two major honey producing areas: the highland mountains of the Sanag region and the Awdal region; there is also some production in the Sheikh mountain areas which less than at the other two sites. Peak harvests of Awdal are June and October where Sanag region honey production peak times are July and November. Honey sales comprises household income of 1 to 45% for some poor families.

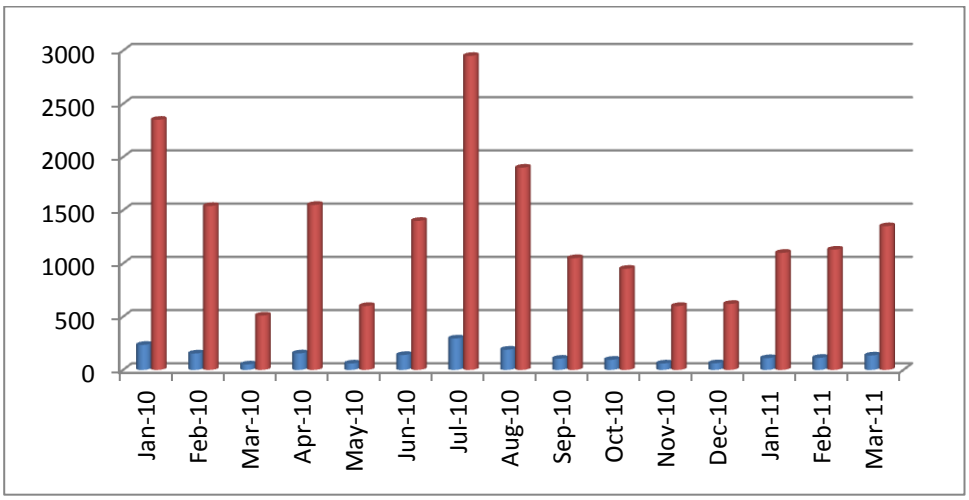

Figure 1. Production level per month, Malabko Company.

Honey prices reached US$9–30/kg in some locations; sometime it was higher than that in neighbouring countries like Djibouti. For export in coastal sites of Sanag region, it reached US$25/kg and more. Honey is in huge demand and sells out very quickly; it is also a potential export commodity for Gulf countries like UAE and Saudi Arabia.

Smallholder beekeepers of Somaliland participated in an international honey show in London in 2002 and won second prize.

Expansion of beekeeping training service

Induced training beekeeping activities in TOT was knowledge storage-repository, knowledge sharing and knowledge application with use that all beekeepers adopted in all regions in Somalia. However, continuation and propagation of ICT training materials are in continuation to activities of beekeeping and honey hunting practices.

There are more than 125 locations where there are active beekeeping groups in Somaliland in the smallest location there are more than 25 beekeepers or honey hunters that are regularly involved in honey production.

Overall estimated honey production in each harvest season in Somaliland is 250,000 kg from the total 16,000 different hives and estimated 200 mountain holes. This estimate provides 500,000 kg of honey per year at a price of US$12/kg – which is equivalent to US$6,000,000 per year for honey production.

> *I did not think that I would have an opportunity to train beekeepers in other regions; when I got TOT, my vision was only to train smallholder farmers, beekeepers and honey hunters in my vicinity. Now I have become a famous trainer in all country South, North, West and East. My knowledge of beekeeping training has expanded. I gained lot of experience including travelling and working in other regions of Somalia. I realised the provided training and materials were based on our success; we propagate whatever we learned the at TOT of beekeeping." – Adan Yusuf Hassan (Beekeeper/Trainer and member of Sanag Honey Cooperative)*

Impact of ICT

ICT is used in beekeeping sectors and has resulted in higher results than expected, which have spread out to all of Somalia; these include:

- practicing and adopting beekeeping activities in Somalia and Somaliland
- more than 5,000–6,000 active beekeepers in operation
- success of international market competition
- high value added for local honey purchasing
- practicing use and benefit from beeswax production
- employment creation and decreased level of unemployment, especially youth and women
- strengthening honey production value chain and its movements
- establishing small companies and honey production cooperatives
- increasing poor household income for beekeepers and honey hunters
- protecting the environment

The way forward

Honey value chain level and strategy for upgrading is essential for achieving an increase in productivity, skill development, employment growth and greater competitiveness. During the study, I distinguish four types of upgrading that should be considered and implemented accordingly:

1) **Process upgrading**: transforming inputs into outputs more efficiently by reorganising the production process or introducing superior technology, including establishing and equipping semi-processing units in many places of the country
2) **Product upgrading:** moving into more sophisticated product lines with higher unit values like proper processing, packaging, labelling, quality control and assurances equipment
3) **Functional upgrading**: acquiring new functions in the chain (or abandoning old functions) to increase the overall skill content of activities.
4) **Intersectional upgrading:** using the knowledge acquired in particular chain functions to move forward.

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