



## Introducing a digital Information Management Systems for the sesame sector

### **Case overview**

*To support the sesame sector, Benefit-SBN has supported information management, to be used by different stakeholders. This started with an Excel database (2016-17) and is evolving towards a sector management information system, based on a tailored software application (2018-19). This note shares experiences and lessons learned and – based on these – some recommendations.*

### **Background**

Agricultural production takes place in rural areas, often remote from tarmac roads and towns. These conditions make it difficult to gather detailed sector information and to provide services to stakeholders. With increased access to computers and internet, digitalized information can be shared, promoting transparency and the use of consolidated information. Data uniformity allows for efficient and reliable information exchange that supports collaboration and trade within the sector.

The first step towards information management was the establishment of woreda databases in Excel, which is a widely available and known tool. Databases were developed, based on available information on key data parameters such as statistics on general population, land characteristics, cultivated acreages for different crops, production, productivity and market prices. Whenever possible, attention was given to disaggregate information according to gender and age. By the end of 2017, the Excel format was provided to 12 woredas, together with new desktop computers. An extensive training on how to interpret and maintain the database was provided.

To simplify uniform data collection, improve data accuracy and streamline data transfer and aggregation, alternative software solutions were investigated. Two digital information systems have been introduced in 2018: FarmForce and eProd. Both systems are specifically developed for smallholder agriculture and marketing in remote areas and work with a mobile application to collect field level data, including GPS references. A desktop application allows for extensive analyses of collected data and can generate several reports. Several stakeholders of the sector, BoA, CPO, unions and cooperatives, are involved to build a sector-wide information management system that meets their data and information needs. The piloting of the digital information systems was done in two kebeles in Tigray and two kebeles in Amhara region.

## Objectives

The ultimate objective is to create a public digital sector information management system, that is up-to-date, reliable and accessible, supporting all sector stakeholders, paid through a levy system.

Specific objectives include: (i) support transparency with a public database; (ii) facilitate the provision of public services by government agencies to farmers; (iii) promote in-depth sector analysis through customized reports; (iv) digitalize member administration of cooperatives and support information exchange between cooperatives and unions.

For 2016-19, the objectives were to contribute to a stakeholder owned database, used for planning, monitoring and evaluation and to have a proof of concepts for a digital information management system.

## Achievements

Through the provision of the Excel database computer, handheld devices and software, training and frequent discussions, stakeholders perceive the importance of reliable digitalized field data.

As partners in tailoring the software and incorporating their information requests stakeholders have gained insights about: i) how to work with software programs, ii) how to structure and prioritize information iii) how to organize data collection and quality control, iv) how to exchange information with other partners and v) how to report and analyse data.

## Experiences and lessons learned: moving from simple to more complex systems in a non-conductive environment

- *Infrastructure.* Stakeholders hardly owned functional hardware to install the software. Power cuts, virus infections and damaged hardware made installation and reliable functioning of the software challenging.
- *Human capacity.* Stakeholders had limited experience to work with computers and any type of software. As a result, the training of dedicated staff members is time-consuming, because of continuous follow up for practice and learning new functionalities. This was further complicated because of high staff turnover.
- *The start with a simple solution.* The excel based woreda databases featured several benefits like low cost and easy to understand and flexible formats.
- *Data modification.* Date entering was not automated or digitalized in the woreda database case.
- In Excel, users can easily modify the format, which puts data aggregation and new data collection at risk. In the digitalized system, this risk is reduced.
- *Multi-step introduction approach.* Given the context of non-existing digital data collection practices and a non-conductive environment, the step from a simple Excel database to a customized public information system is huge. This increases the risk of errors and limited use of the information system. At hindsight, a smaller scope at the beginning, could have reduced the time and investments for getting a digital

The screenshot shows a web-based application window titled "e-prod - SBN - [Contacts]". The interface includes a menu bar (File, Contact System, Production, Processing, Reporting, Extra, Windows, Help) and a toolbar with navigation icons. Below the toolbar, there are tabs for "Contacts", "Details", "Map", "Remarks", "Logging", "Contracts", "Training", "Fields", and "Collections". A search and filter section contains input fields for "Contact name", "EPID", and "ID", along with a "Group" dropdown and a "Limit" set to 1000. There are also checkboxes for "Sort by EPID" and "Hide Inactive Contacts". The main area displays a table with the following columns: EP-id, ID, Organisation, Shortname, Active, Banned, Validat..., and Group. The table contains 20 rows of data, each representing a contact record.

EP-id	ID	Organisation	Shortname	Active	Banned	Validat...	Group
1E/99	ግዛ/ግዞፎ02/1848		ከሀከይ ኦብሮ	1	0	0	ብሉክ21
1E/93	ግዛ/ግዞፎ01/1439		ከሃዋ ገላው	1	0	0	ብሉክ24
1E/594	ግዛ/ግዞፎ02/174		አከፋው ጦኮርያ	1	0	0	ብሉክ23
1E/566	ግዛ/ግዞፎ02/832		አብይርቃይር ኢይም	1	0	0	ብሉክ24
1E/561	ግዛ/ግዞፎ02/1172		ፍቅር ባላይ	1	0	0	ብሉክ24
1E/557	ግዛ/ግዞፎ02/1932		አብሮህ ሐገስ	1	0	0	ብሉክ24
1E/553	ግዛ/ግዞፎ02/3477		ለምለም ገ ስላሊ ገ ሀውት	1	0	0	ብሉክ21
1E/54	ግዛ/ግዞፎ02/256		ባዎ አምባው	1	0	0	ብሉክ23
1E/539	ግዛ/ግዞፎ02/618		አዛብ አብሮህ	1	0	0	ብሉክ21
1E/535	ግዛ/ግዞፎ02/170		ጆምባሩ ጦካተ	1	0	0	ብሉክ20
1E/534	ግዛ/ግዞፎ02/749		ከሌ ተክላይ	1	0	0	ብሉክ20
1E/530	ግዛ/ግዞፎ01/1839		ውዲ ገሌ	1	0	0	ብሉክ27
1E/528	ግዛ/ግዞፎ02/2048		ደረጋ ገበየብ	1	0	0	ብሉክ24
1E/524	ግዛ/ግዞፎ01/4323		ገሌ ከቦታው	1	0	0	ብሉክ20
1E/520	ግዛ/ግዞፎ02/505		ፀሀይነት ብሮህ	1	0	0	ብሉክ24
1E/512	ግዛ/ግዞፎ02/1039		ቦርና ዘም	1	0	0	ብሉክ24
1E/502	ግዛ/ግዞፎ02/1243		ገ ኮላን ብርሃን	1	0	0	ብሉክ23
1E/498	ግዛ/ግዞፎ02/802		አብሮህ ቦርካ	1	0	0	ብሉክ20
1E/492	ግዛ/ግዞፎ02/3628		ግብሩቱ ወ እግዚ	1	0	0	ብሉክ23

information system up and running. Although this would require more software, feature and system changes, it could increase learning, interest and (financial) support of partners.

- *Sustainability/affordability of scaling.* The introduction of advanced information management software's includes high implementation costs. Major cost items are: computers, phones, motorbikes. System licenses are often expensive and require yearly payments in foreign currency.
- *Technical assistance.* Digital tools are complicated and can face many technical problems. A computer expert including knowledge of the information system is needed to support stakeholders with any challenges they face along the way.

### **Experiences and lessons learned: system development and functionalities**

- *Software customization.* The digital system was adapted to accommodate local needs and translated in local languages (Amharic and Tigrigna). A tailor-made system increases the likelihood of future use by local stakeholders.
- *User friendliness.* Some software interfaces are more intuitive and easier to use than others with more advanced options. A combination of a simple mobile application and advanced desktop software is a good solution to accommodate the different stakeholder capacities and needs.
- *Offline functionality.* In a context of unreliable access to internet, a system that can be accessed offline is an asset. This applies more to the e-Prod system than to the FarmForce system.
- *Aggregation possibility.* With the digital systems, data from kebeles can be aggregated to woreda, zone and regional level to serve different purposes. This is also possible with Excel, but this has more risks for errors.
- *Multi-stakeholder accessibility.* The generic information system can be accessed by different stakeholders, who can add and manage additional information streams according to their specific needs. This requires dedicated, competent staff.
- *Time to build the database.* Patience is required when developing a customized information system in local languages. Translation from English to Amharic and Tigrinya was a very time-consuming exercise.

### **Experiences and lessons learned: data collection**

- *Data collection.* The building of the database requires data collection in the field, including GPS referencing. This also proved to be time-consuming. Stakeholder expectations and data correction need to be carefully managed.
- *Stakeholder support.* BoA and unions supported the hosting of staff and shared costs for transport (motorcycles).
- *Community acceptance.* The most important data input providers are farmers. Providing personal information requires trust and understanding. Careful introduction with the help of community leaders or local authorities is key. Clear benefits, such as weather forecast services and others, would enhance the likelihood of acceptance.

### **Experiences and lessons learned: sustainable system use**

- *Benefits for stakeholders.* The most important feature of an information management system is a clear benefit for different users. Benefits stimulate users to make an effort and invest.
- *Integration into daily processes.* The organisations participating in the pilot are used to a certain way of working and procedures. The biggest challenge is to integrate the new information management system in daily work routines.
- *Support of higher levels.* Once data are collected in four kebeles, it is important to proof the concept and convince higher officials. Their buy-in can facilitate the change of work routines and the search for sustainable funding, for which a levy system is a possible solution.