Beyond certification*

The potential of Digitalisation and Data driven development for smallholder farmers in Africa

Impressions from an ongoing agricultural pilot project in Uganda

May 2020 – May 2022

GHN (U)

Agricultural Development Denmark Asia

DUFA

Dansk Ugandisk Venskabsforening

Danish Ugandan Friendship Association

**Title inspired by a presentation given by Mr. Nico Roosen, Director of the Dutch NGO Solidaridad, at a value chain seminar in Copenhagen in 2015.*

The people behind:

Bob Marley Achura

Executive Director of GHNU, Global Health Network Uganda. GHNU is implementing partner under this project.

GHNU is an NGO in northern Uganda mainly specialized in Public Health but also has a history of delivering a number of smaller income-generating interventions uplifting the livelihoods of the people in the area. GHNU has a history of approx. 10 years.

Bob is a native of northern Uganda and holds a M.Sc. in Global Health from University of Edingburgh in UK, PhD in Preclinical Medicine, Newcastle University/University of West Indies. Bob is an external examiner at Icahn School of medicine at Mount Sinai, NYC and part time lecturer at Uganda Christian University (UCU).

Agea Go-Deos

Chairman of DUFA, Danish Ugandan Friendship Association. DUFA is project holder with CISU.

DUFA is a Danish NGO with the main purpose to build bridge between Uganda and Denmark. One major achivement that DUFA has delivered to date is to successfully implement another project in northern Uganda, ”Plant and Health Project”, training smallholder farmers in sustainable farming practices and organizing farmers into an agricultural cooperative.

Agea is a native of northern Uganda and holds a M.Sc. in Coumputer Science from University of St Petersburg, Russia. He is now employed as IT-expert at the Danish Agricultural Agency under the Ministry of Agriculture of Denmark.

Mikael Jonsson

Vice-Chairman of ADDA, Agricultural Development Denmark Asia. ADDA is a digital advice partner under this project.

ADDA is a Danish NGO specialized in the area of agricultural development and has a number of ongoing projects. ADDA works for promotion of self-sufficiency and improvement of the financial conditions in the poorest rural areas in developing countries by providing help to self-help actvities.

Mikael is a native of southern Sweden and holds a M.Sc. In Tropical Agriculture from the Royal Veterinary and Agricultural University (KVL) in Copenhagen. He has lived in Tanzania for 5 years working in agricultural projects. He is now employed in the Finance Department of the Danish Fisheries Agency under Minstry of Agriculture.

Data-Driven Initiative for Organic Soybean Farmers in Oyam & Kwania Districts in Uganda

Grant holder in Denmark: Danish Ugandan Friendship Association (DUFA)

Implementing Partner in Uganda: GLOBAL HEALTH NETWORK Uganda (GHNU)

Technical Advice Partner in Denmark: Agricultural Development Denmark Asia (ADDA)

Intervention period: 31-05-2020 to 31-05-2022

Grant amount: 499.566,00 kr.

Summary:
This intervention aims to empower the farmers and their organisations to have control of their agricultural data in order to get their own organic certification. The certification will improve their negotiating power on the national and international markets and enable them to get a better price for their produce.
The intervention will explore how smart phones and internet technology can be used to collect and share relevant data between actors.

Oyam and Kwania Districts are already leading producers of organic soybean in Uganda. Much of this soybean is exported to overseas markets. It is normally the international companies and middlemen who reap the benefits leaving farmers in most cases with nothing. They promise farmers high prices but when the crops are harvested they dump the prices leaving the farmers in a role as price takers. In conclusion the intervention aims to link the farmers to national and international markets by getting them an organic certification.

The project is innovative because it relies on mobile data collection for collecting data to serve as basis for Organic Certification to be undertaken by the accredited certification agency Control Union. The data (including digital maps of the farmers' fields) is shared relying on an Internet Cloud Server, GIS Cloud.

The case for digital agricultural development

- We strongly believe in a ***Digital Evidence Based and Data Driven Approach to Agricultural Development,*** as a way to **DEVELOP, TEST and SCALE** agricultural innovations in collaboration with smallholder farmers, while building their technical skills and strengthening their organizations and linking them to local and global markets for certified agricultural produce.
- Our project idea was developed through numerous WhatsApp lunch-meetings and correspondances; Bob Marley was in Denmark in April 2019 for signing MOU (GHNU-DUFA-ADDA) and we had meetings with CISU and a potential buyer of certified organic soybeans… + Inspirational session with Organic Denmark chairwoman, ADDA Chairman and ressource persons etc.
- On the ground in Uganda we tested digital smartphone App: Initial pilot of 5 fields that we successfully expanded to 50 feilds… At almost no cost. High level of motivation and energy on side of GHNU.

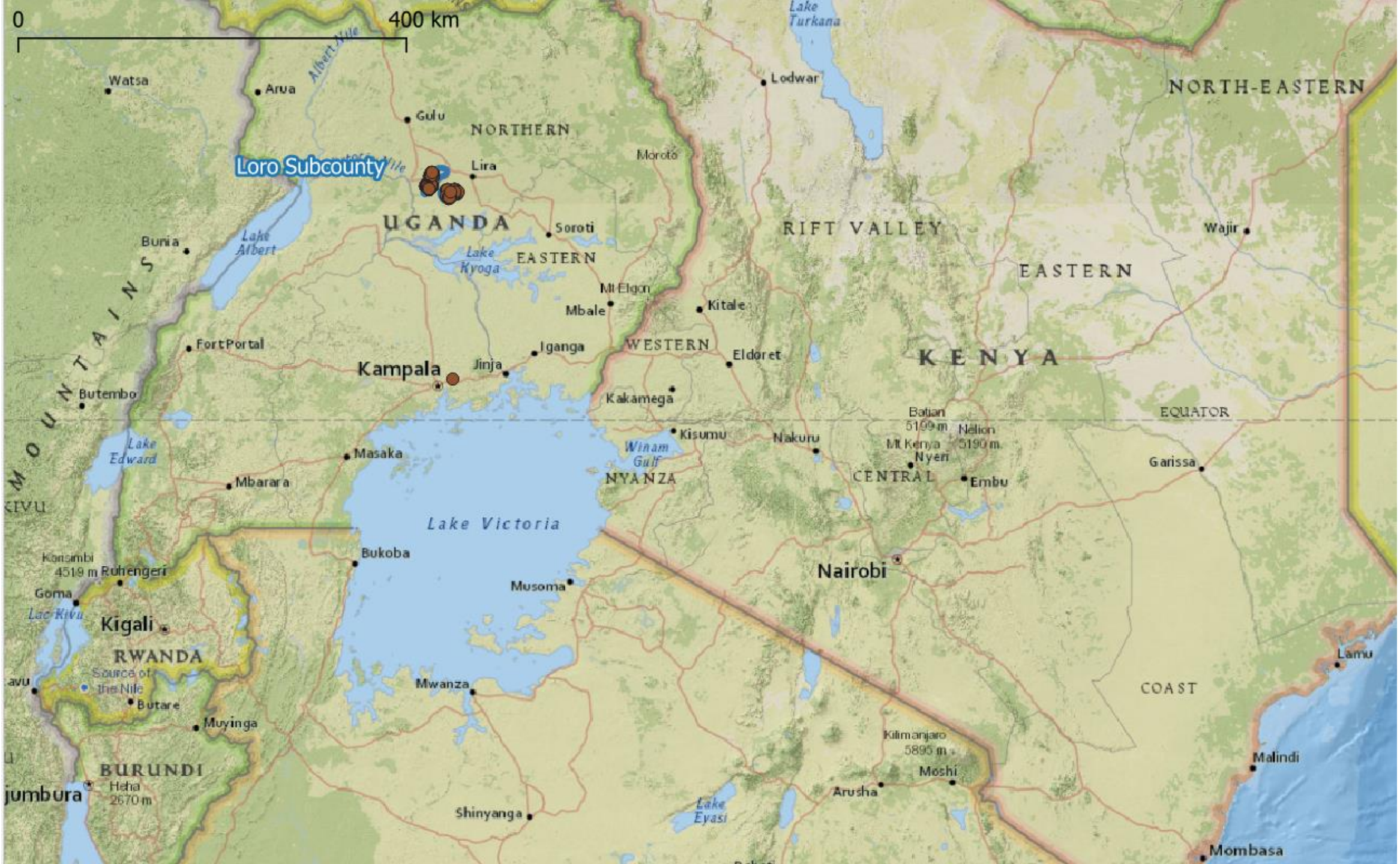
Application of standard off-the-shelf digital solutions:

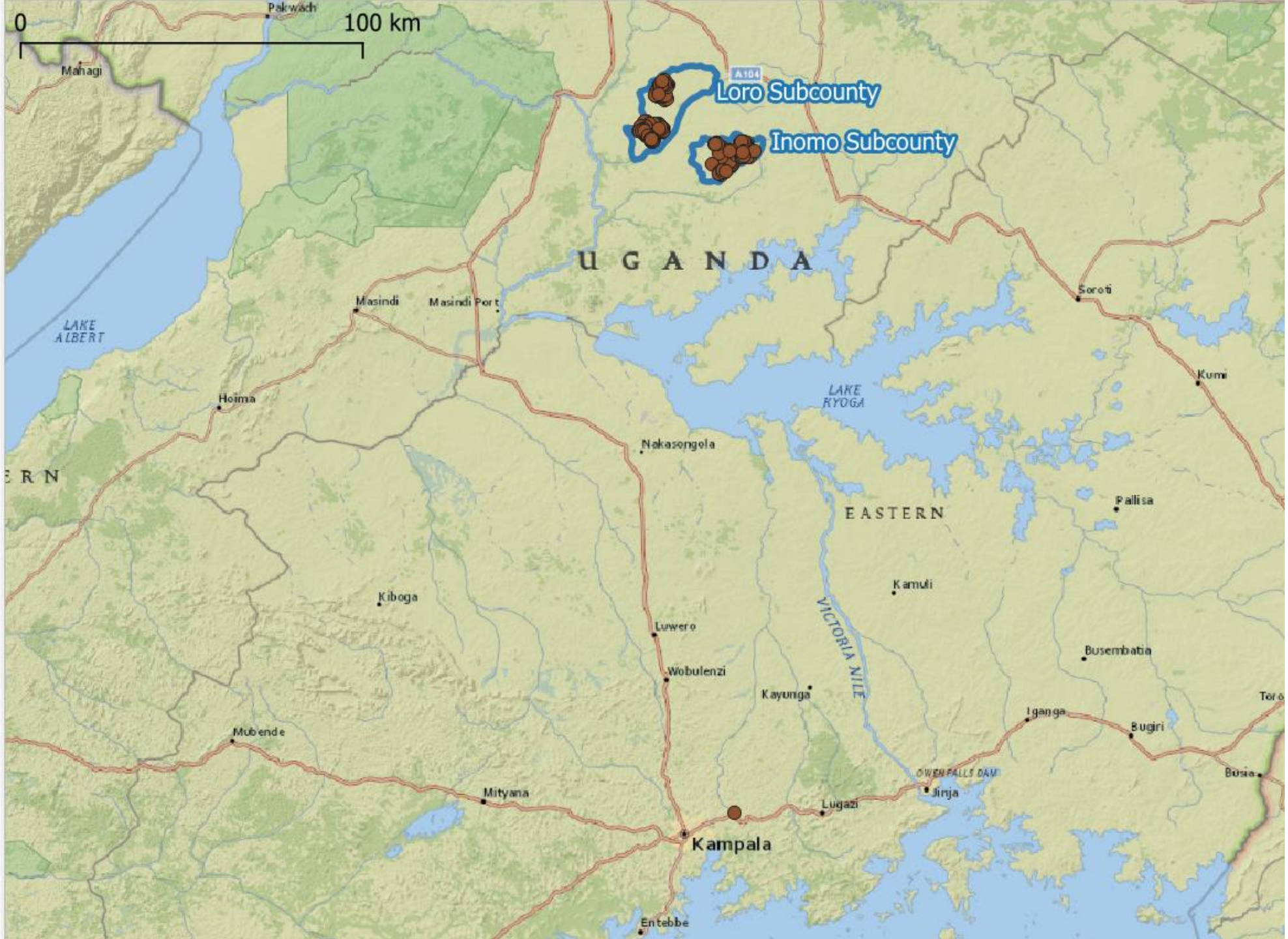
- **Online mapping solution:** We have already successfully adapted and applied a standard off-the-shelf online digital data collection and mapping software, GisCloud, as basis for an organic certification excercise covering 300 smallholder farmers.
- **Online two-way-SMS-solution:** We are about to test an interactive platform for sending 2-way SMS messages to all 300 farmers. Enabling us to:

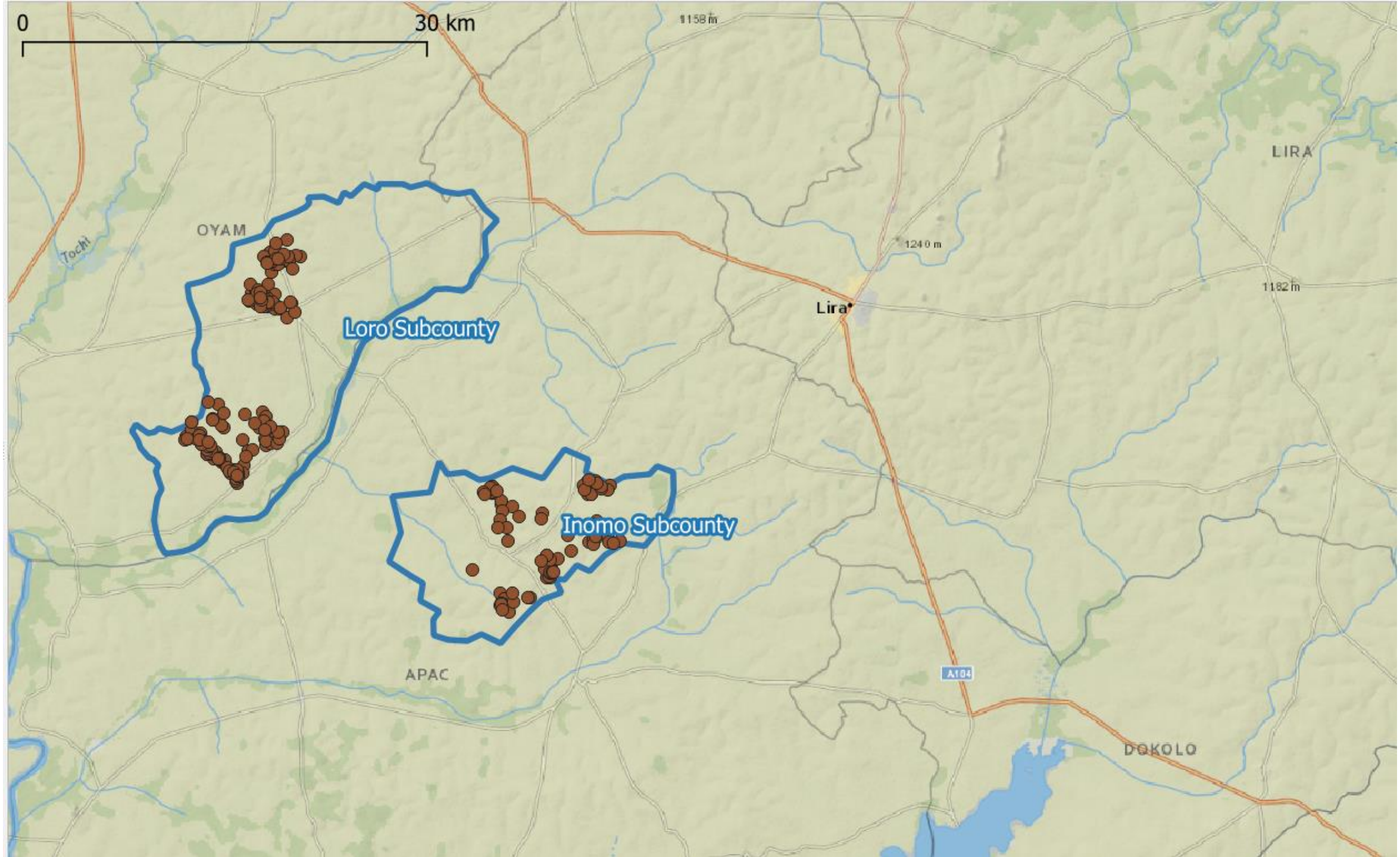
  (i) keep them directly updated on project developments (getting the story straight) by sending hyper links to our project homepage (both in local language and English)

  (ii) conduct real time interactive SMS surveys fx getting real time info on harvested volumes available in particular collection points for market linkage

  (iii) conduct real time evaluations to get their views on project implementation and challenges.


0
400 km
Loro Subcounty
Watsa
Arua
Albert Nile
Gulu
NORTHERN
Lira
Moroto
Lodwar
Lake Turkana
NORTH-EASTERN
UGANDA
Soroti
Lake Albert
Lake Kyoga
EASTERN
RIFT VALLEY
Wajir
Bunia
MOUNTAINS
Mt Elgon
Mbale
Kitale
EASTERN
Fort Portal
Iganga
WESTERN
Eldoret
KENYA
Kampala
Jinja
Butembo
Kakamega
Batian 5199 m
Nelion 5190 m
Mt Kenya
Nyeri
EQUATOR
Kisumu
Nakuru
Lake Edward
Masaka
Winam Gulf
NYANZA
CENTRAL
Embu
Garissa
Mbarara
KIVU
Lake Victoria
Bukoba
Karisimbi 4519 m
Ruhengeri
Musoma
Nairobi
Goma
Lac Kivu
Kigali
RWANDA
Source of the Nile
Butare
Mwanza
COAST
Lamu
Muyinga
Kilimanjaro 5895 m
Moshi
Malindi
BURUNDI
Heha 2670 m
Arusha
Bujumbura
Lake Eyasi
Shinyanga
Mombasa


0
100 km
Pakwach
Nwoya
Mahagi
Loro Subcounty
Inomo Subcounty
UGANDA
Masindi
Masindi Port
LAKE ALBERT
Soroti
Kumi
LAKE KYOGA
Hoima
Nakasongola
ERN
EASTERN
Pallisa
Kamuli
Kiboga
Luwero
VICTORIA NILE
Busembatia
Wobulenzi
Kayunga
Iganga
Bugiri
Mubende
Busia
OWEN FALLS DAM
Jinja
Mityana
Lugazi
Kampala
Entebbe


0
30 km
1158 m
LIRA
OYAM
Tochi
1240 m
1182 m
Lira
Loro Subcounty
Inomo Subcounty
APAC
A104
DOKOLO

c22_crts	c24_crcn	c99_time	c26_ovph	c27_inph	c28_clph
soybeans	4	06/03/2021 2:17:07 PM			
soybeans	4	06/03/2021 1:51:55 PM			
soybeans	3	06/03/2021 12:56:54 PM			

Digitalization – Our motivation

- Digitalization will be the next salvation for Africa! Report Film about report
- Digitalization is already transforming Africa:

(a) M-pesa mobile payments

(b) Increasing mobile phone penetration (Uganda 49%; Tanzania 82%)

(c) Urban and rural populations of Africa are on social media

(d) WhatsApp has been a game changer for how we as Danish NGO's interact with project partners in Africa and beyond…

Digitalisation in Africa – An opportunity for **small** NGOs to empower smallholder farmers and their organizations

- The ”Digitalization in Africa report” projects that in the near future smallholder farmers accross Africa will use their smartphones to sell their crops on internet platforms run by multinational companies!
- Is there a role for small NGOs to guide this digital transformation?
- Definitely Yes! – We believe that there is a role and that smallholder farmers and their organisations have to Own Their Data* and Drive this. Support is needed. For example they have to have their Own their Certifications to benefit from organic premium prices. If the companies own them they will be expoited (This is the rule today).
- The long term objective is that the farmers will be organized as a cooperative, that can formally own the organic certificate. The coop wil have processing and storage facilities. As a legal entity the cooperative will be able to borrow money from the banks under special conditions.

*Read more about Data Sovereignity at www.godan.info

Limitations to digitalization:

<u>At the receiving end:</u>

Most smallholder farmers in Africa either
(i) cannot afford to have an expensive smartphone,
(ii) only have limited access to 3G internet

<u>On the supply side:</u>

Most small NGOs niether have the expertise nor the financial resources to run complex IT-systems and platforms.

Devil's advocate would say:

- Paper-based systems are much safer and more robust under remote rural condtions in Africa (off grid; no 3G internet). Digitalization has no role to play.
- The transformative power of digitalization (as we know it in Dk) is something that will have to come later to Africa… and at this stage it is definitely not relevant as a tool for grass-roots empowerment of smallholder farmers
- Small Danish NGOs must concentrate on what they are good at relying on traditional means: Training in organization building of groups and coops; Training in improved production methods etc. Absoulutely no need for digitalization here!
- GDPR ☹ . Just imagine the "mess" at the first data leak! – Prepare for failure!!!
- *Computers, smartphones and Apps are just tools that we should all use for our daily NGO-work… It does not make sence to build whole development projects in the South around digitalization… a waste of time… counter productive…* ***we lose sight of our main purpose as NGOs, which is to help the poor smallholder farmers to improve their livelihoods…***

We would like to prove the sceptics wrong!

- Digital systems can be a safe and robust choice (as compared to paper based systems) ALSO under remote rural condtions in Africa. Mobile 3G towers constitute a stable link to the global intenet for ***safe storage of data*** (better than dusty cabinets with paper forms eaten by termites).
- There is already a local company in Uganda producing mobile phones and soon they will start to produce smartphones. And this will further push prices down.
- The increasing robustness and affordability of cloud based IT and the availability of low-cost Android smartphones cannot be overseen. Small Danish NGOs must realize how these digital tools can be useful for them to boost and scale their efforts in empowering smallholder farmers… **Scalability is key here ! [DEVELOP, TEST, SCALE]** .

Scalability and innovation: -Key arguments for a data driven digital approach

- A data driven, evidence based approach, fits perfectly with the standard project planning and management tool box
- TOC (Theory of Change) and LFA (Logical Framework Approach) with clear Objectives, Outputs, Activities
- Each of these items can be directly linked to **a Digital Data Stream**
- We can process data collected from the field with smartphones in real time **to continually document ”What works and what does not work!”, [DEVELOP, TEST, SCALE]**

Our Data Streams

- We have an **Online Microsoft Team Site** [link] for internal use by project staff (in Uganda and Denmark) where all relevant project documentation is safely stored in one place
- We have a **Mobile data collection App for Android smartphones** is used by project staff to regularly collect real time GPS tagged and time stamped data from the field
- We have an **Online GisCloud internet mapping portal** with real time access to field data for project staff (maps, photos, text, numbers). https://www.giscloud.com/
- We are planning for a **Project homepage** mainly for communicating directly with the target group of 300 smallholder farmers and 10 farmer leaders
- We are planning to test an **interactive online 2-way-SMS gateway** for interactive communication with the target group of 300 smallholder farmers and 10 farmer leaders (Interactive SMS polls; SMS messages with hyperlinks to our homepage and training videos etc.). We can motivate farmers financially by sending them minimal air-time top-ups of fx 0,2 USD per message for replying to polls etc.

Achievements under our pilot project to date:

- After numerous digital meetings. GHNU signed contract with an Accredited Certification Agency, Control Union January 2021. Control Union has assisted GHNU in setting up ICS (Internal Control System).
- TOTs and farmer trainings on organization building completed. 10 farmer groups formed.
- TOTs and farmer trainings on organic GAP trainings completed
- TOTs and farmer trainings on establishment of ICS.
- Expecting to obtain an organic certificate for 300 farmers based on 100% digital documentation. EU Organic Certificate to be issued by Dutch Accredited Certification Agency, Control Union, based on 5 days field audit visit at our implementing NGO, GHNU (Global Health Network Uganda) in July 2021.
- In terms of Organizational development: We had one formal experience sharing Skype-meeting between ADDA Tanzania Field Team in Dodoma and GHNU Uganda Field Team in Oyam. ADDA is since 2016 implementing smallholder organic sunflower project in Tanzania that last year successfully certified and linked farmers to market.
- Our digital approach has successfully lived through Corona (adding some protective gear and sanitizer…). And Agea is going to Uganda for annual monitoring visit next week to follow up on the ground…

Beyond certification by www.fairfood.nl/en/

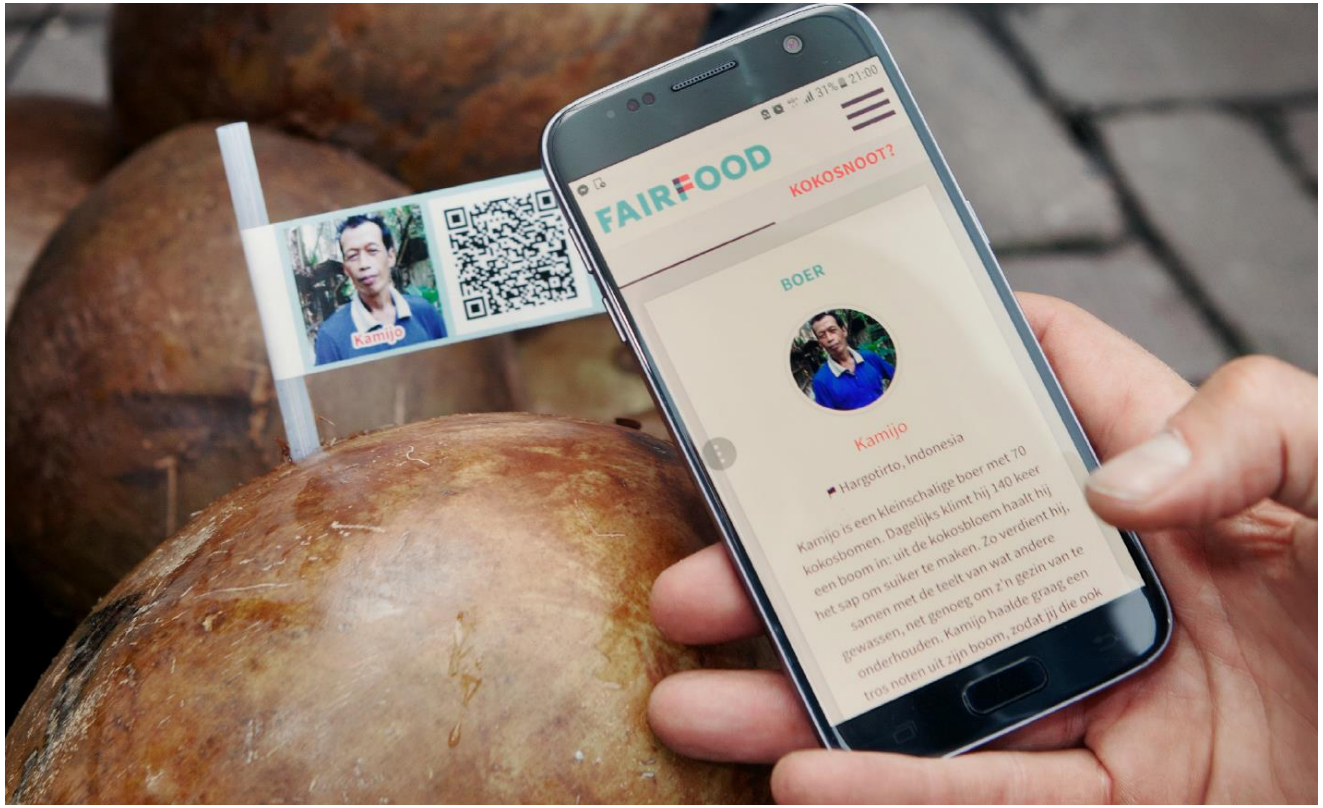
The key argument put forward by Dutch NGOs Fairfood and Solidaridad is that traditional certification systems belong to the past. Certification systems are marketing tools, that have been invented as systems for ”Verification of Claims”.

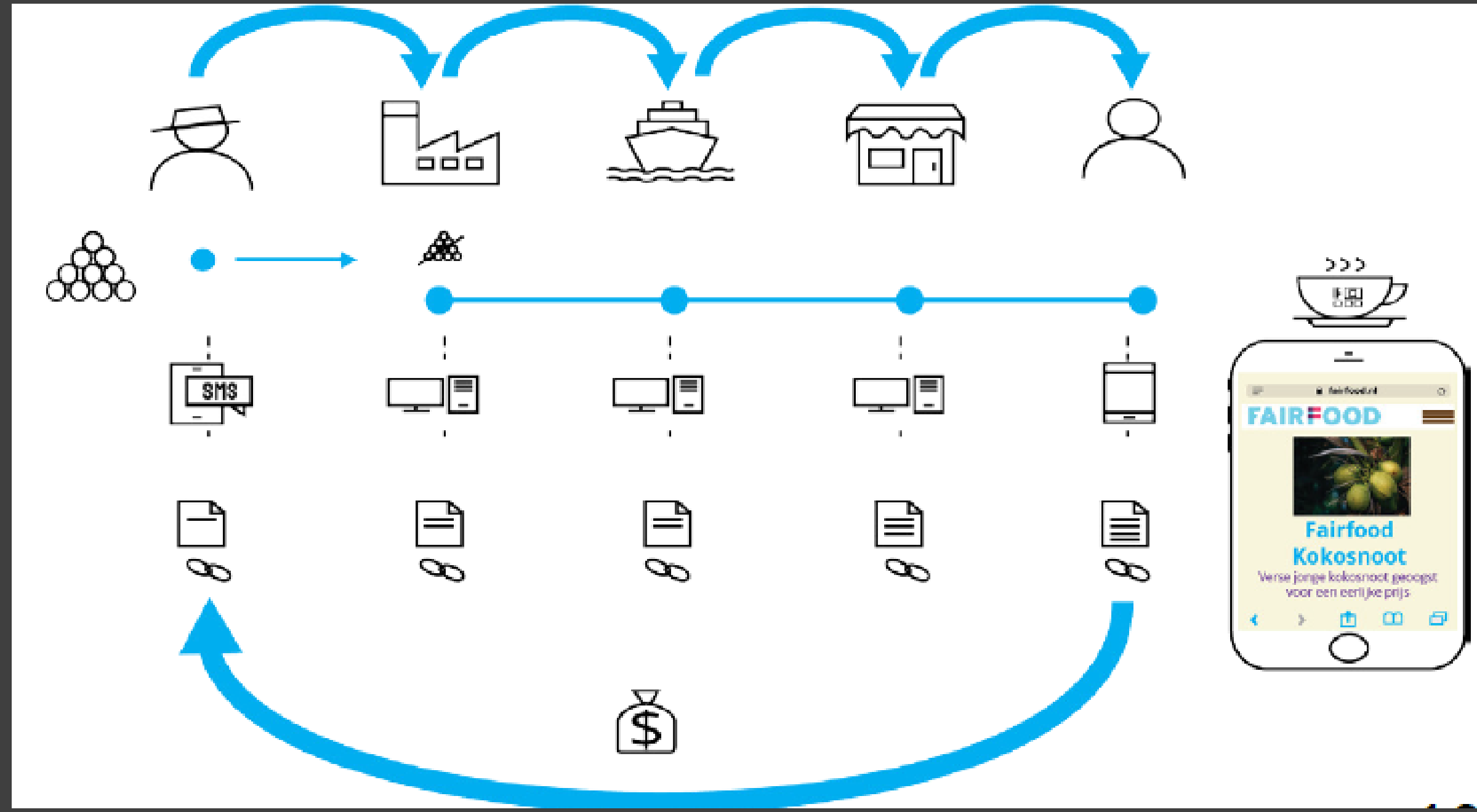
In a near future these traditional certifications (fx Certified Organic; Fair Trade; Global GAP) will be substituted by robust Block-Chain-Solutions that enable the Woke Consumers in EU, USA and the urban elites of the Global South to ”directly know their farmer” via a blockchain App which can simply scan a QR code on the product.

Beyond certification - The challenge

- Certification labels have done a great job and raised a lot of awareness among consumers when it comes to social and environmental sustainability. Nevertheless, with current practices quality marks are reaching their limits. They will be the first to admit this.
- One problem with certification is that they only offer one standard, while every product and product chain is unique. To summarise this complex ecosystem of people, activities and processes in one binary certificate – fair, organic – is not enough.
- The next step lies in transparency and traceability – in connected chains and chain partners who can take their responsibility. Various certifiers, too, are looking into this. **Trace App** is the next step. In the future, certification labels could potentially serve as a partner on the Trace platform (www.fairfood.nl)

Fairfood's smartphone App:




SMS
FAIRFOOD
Fairfood
Kokosnoot
Verse jonge kokosnoot geoogst
voor een eerlijke prijs

The future oforganic certification in Vietnam

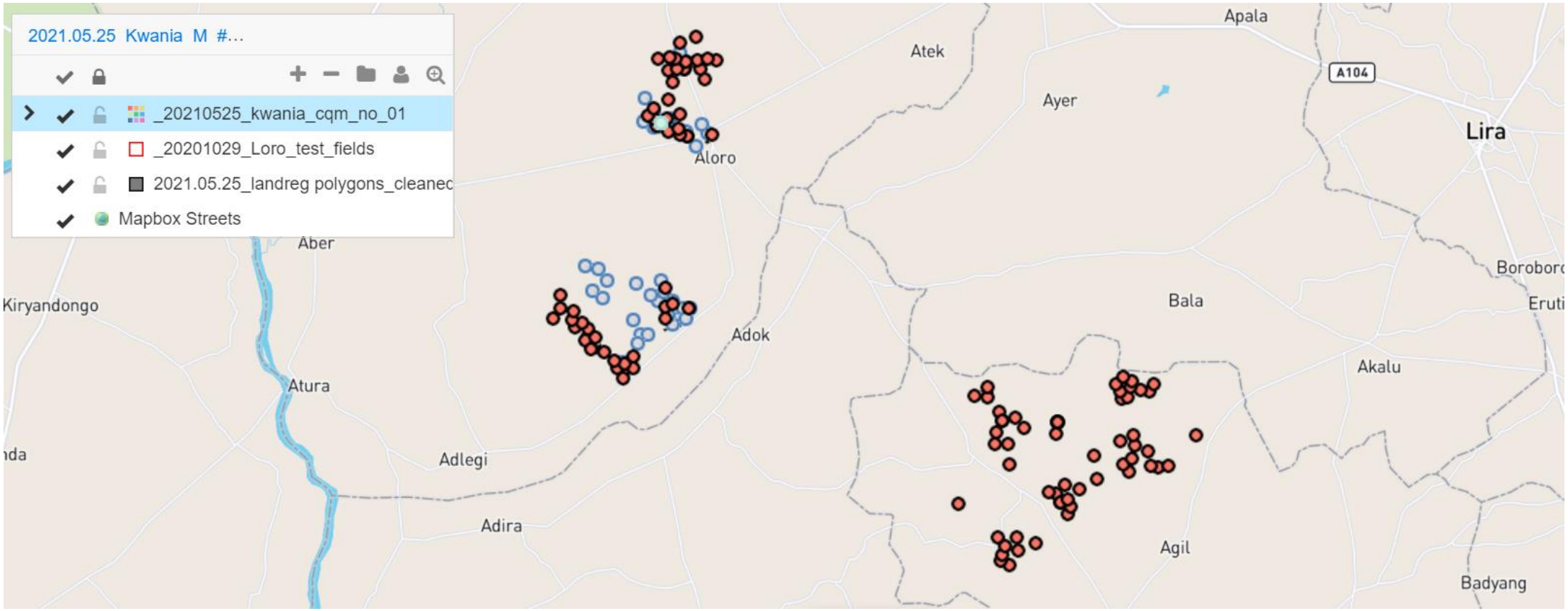
- ADDA project since 2008 on farmer managed PGS (Participatory Guarantee Schemes) supplying certified organic produce to urban fruit and vegetable markets.

In conclusion

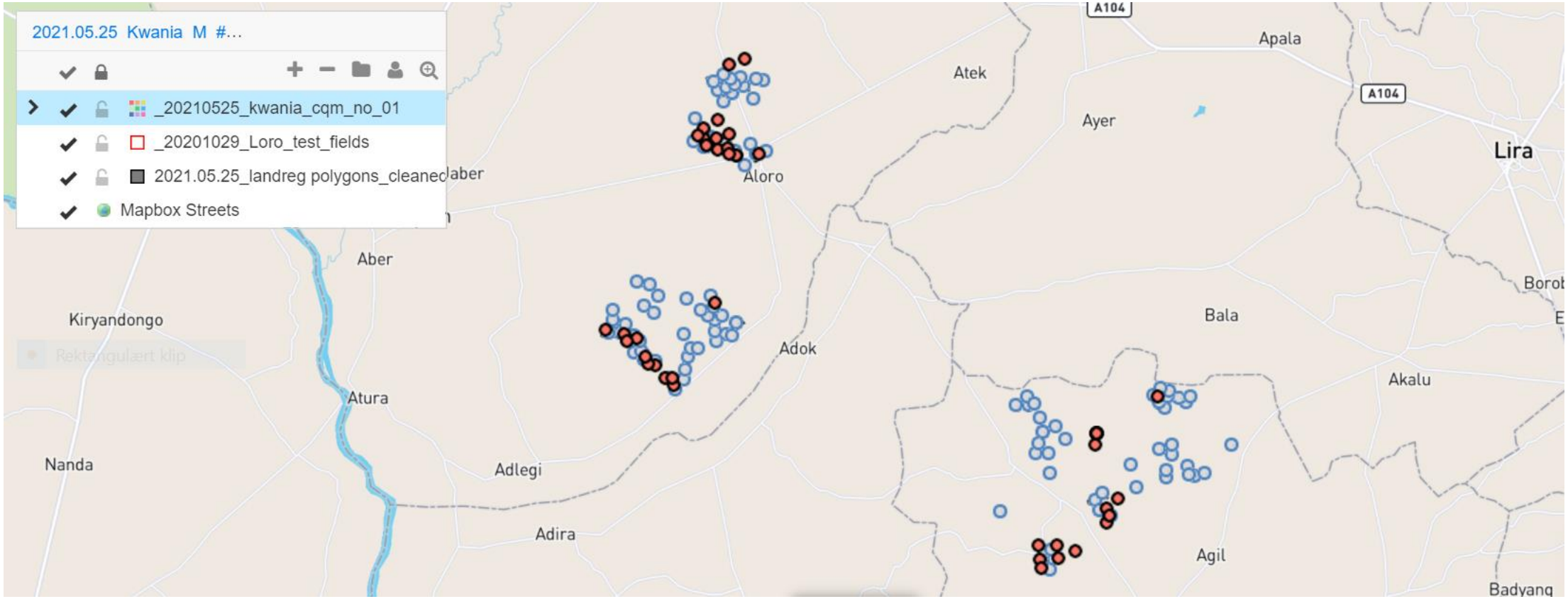
- A data driven digital approach enables us to champion the interests of the smallholder farmers
- GPS-tagged and time stamped quality data is key. We know for sure that something is going on. And there is volume exposure between project staff and the target group… This matters!
- We know that our monitoring/data collection was not conducted from an air-conditioned office or ”under the mango tree”…
- And we get a real picture of the impact of our field activities… real quality data about real people… Evidence based approach… Full transparency **…can be used as a tool to scale and leverage more external funding… better access to external resources and linking to markets…**

Progress of data collection this season from day to day (blue dot means visited field):

Monitoring status, Internal audit excercise, 3 June 2021:



Monitoring status, Internal audit excercise, 11 June 2021:



Long term perspectives of this data driven approach:

The data driven nature of our initiative means that our approach for example easily lends itself to digitally and practically linking up to:

-Local buyers who will know exactly how many tons of a given crop that they will come to pick up at an agreed price at a given collection point.

-SAP digital warehouse and logistics solution for smallholder farmers.

-Linking farmers to online block-chain logistics solutions of operators like Maersk

-Linking farmers to online block-chain solutions of buyers in other countries using a system like the platform and App provided by www.fairfood.nl

Global premium markets for sustainable climate friendly certified produce from smallholder farmers:

- Certified sustainable proteins for human consumption produced by smallholder farmers
- Certified sustainable fibers for human consumption produced by smallholder farmers
- Certified sustainable fruits, vegetables, spices and nuts produced by smallholder farmers

EU Agricultural Market *Briefs* No 18 | June 2021

EU imports of organic agri-food products

Key developments in 2020

TABLE 11 - Organic import volumes of soyabeans by exporting country, 2019 and 2020 (thousand t)

	2019 imports	2020 imports	Change (%)	Share (%, 2020)
Togo	42.3	51.0	20.4	37.1
Ukraine	17.1	28.7	67.8	20.9
India	21.6	15.6	-27.8	11.3
Kazakhstan	7.4	11.0	49.6	8.0
Uganda	2.3	8.8	282.7	6.4
Benin	0.7	6.3	758.5	4.6
Burkina Faso	3.7	5.2	41.1	3.8
China	26.5	4.4	-83.4	3.2
Total	**130.3**	**137.3**	**5.4**	**100.0**
Share selected countries in total (%)	*93*	*95*		

Source: Traces

Recommended video to see: Role of NGOs and Organic Certification and Premiums to smallholder farmers

https://youtu.be/E9xLBfWbGew?t=1230

Webinar dated 15 September 2021