



thrive™

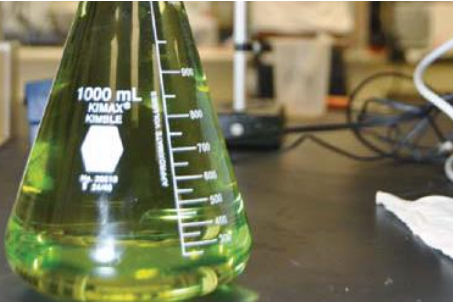
Smart Farm and Traceability System for Agricultural Products using IoT Technology

Ratih Neumann
Dec 11th 2019

CARGILL IN INDIA



Agricultural Commodity Trading & Processing



Industrial



Oil, Fats & Food



Business Services



Starches & Sweeteners



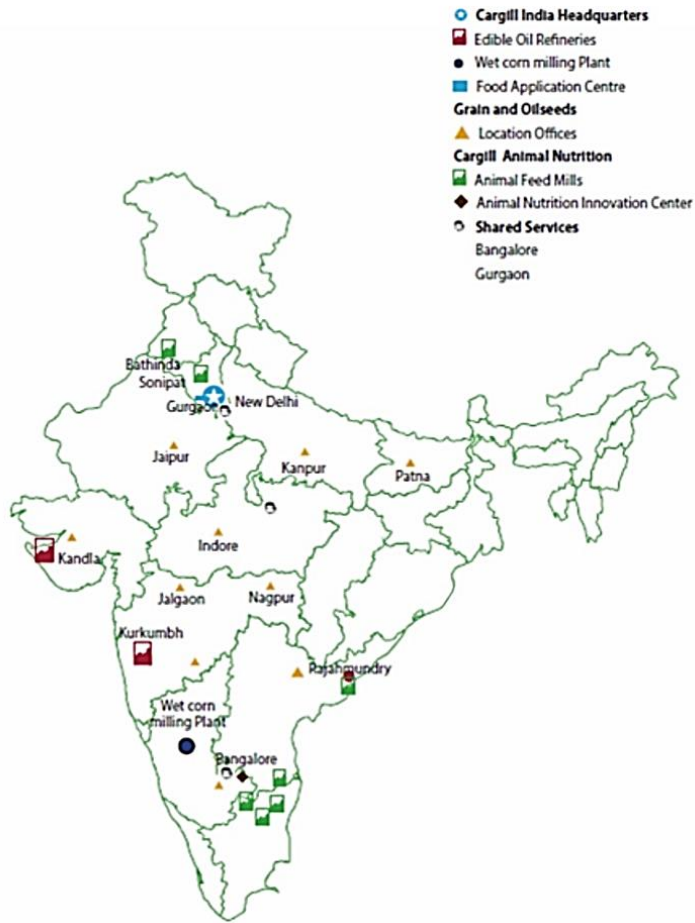
Animal Feed & Nutrition



Financial & Risk Management



Ocean Transportation



INR
8000+ crore
company



Started Operations in 1987,
Today has over
4000 employees



Reach over
2 lacs+
retail outlets

6
consumer
brands and
3 animal
nutrition
brands

CARGILL FSQR

- At a glance

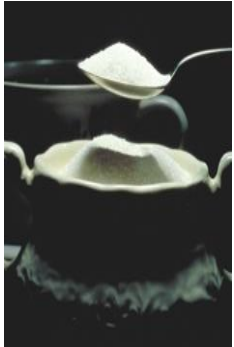
OUR PURPOSE

Nourishing the world in a safe, responsible and sustainable way.



Our goal is

to provide high quality, safe food, every time,
everywhere.



Food Safety: Critical to Our Success

- Food safety is **fundamental** to our success and is part of our **DNA**.
- Food safety is one of the **most** important issues for Cargill and **will** continue to increase in importance for the company.
- Food safety is an area of **strength** for Cargill. We take a comprehensive science and risk-based approach to food safety in our policies, operations and supply chains, and we strive to continuously improve food safety and understanding.

Our Food Safety Operating Principles



Leadership We will be a reliable source of expertise for our customers; have the trust of regulators; earn the confidence of consumers; and be a catalyst to improve food safety in the industries in which we operate.



Global Approach We have a single systems approach to food safety management for all of our businesses, across all geographies. We have developed rigorous food safety requirements for our vendors, suppliers and external manufacturers and hold them accountable for fully implementing our requirements.



Accountability We hold ourselves accountable to fully implement our global food safety approach and continuously seek ways to improve the food safety system. We hold our vendors, suppliers and external manufacturers accountable for fully implementing our requirements for them.

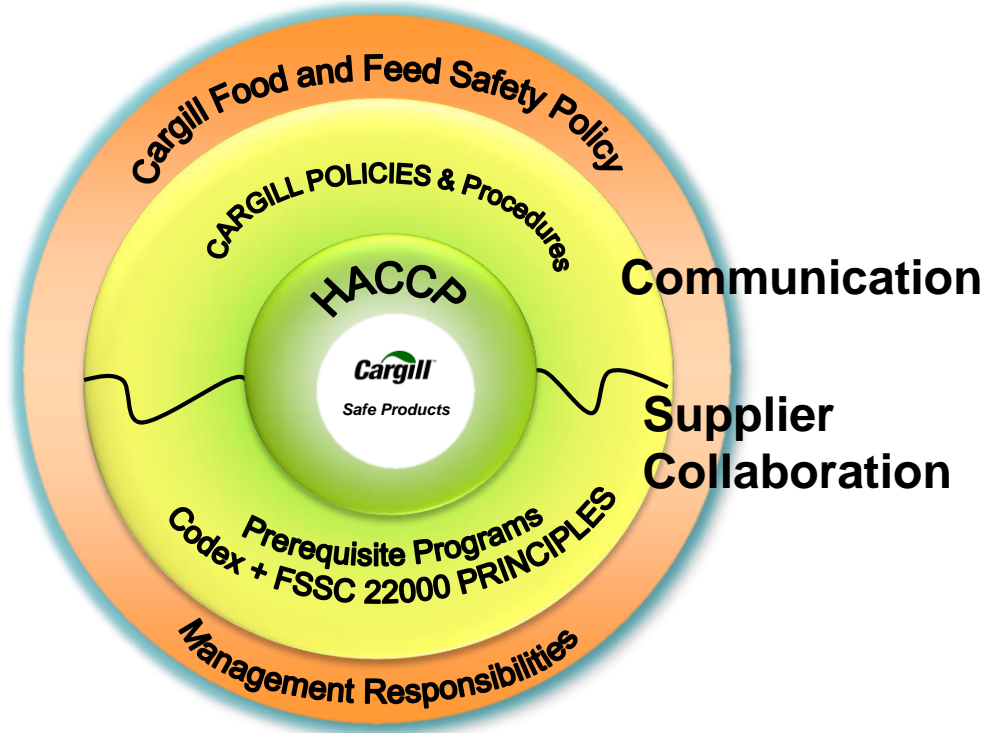


Personal Responsibility All Cargill employees are responsible for contributing to the success of our food safety system. They will be empowered to bring forward ideas that can improve our efforts and to take action when they see a problem in our operations that could compromise food safety.



Transparency Cargill is committed to sharing information on food safety issues, including innovation and industry challenges, across our businesses and with regulators, customers, vendors, suppliers and external manufacturers, and consumers.

Science & risk- based approach to food safety



The “FSQR System”

The way we work together to be efficient and effective



Using Technology to improve Traceability

- **CARGILL COCOA PROMISE**
- **PPP – Public Private Partnership at GMS**

Traceability is the ability to follow the movement of a product through stages of production, processing and distribution (ISO def)

Consumers are demanding more and companies are responding



94%
of consumers

say it's important that brands and manufacturers are transparent about food ingredients and how foods are made.¹



73%
of consumers

are willing to pay more for this transparency.¹



now expect food & beverage companies to make a positive social impact, as well as money.²



43%
increase

in new chocolate launches with ethical human claims.³



+55%
Human

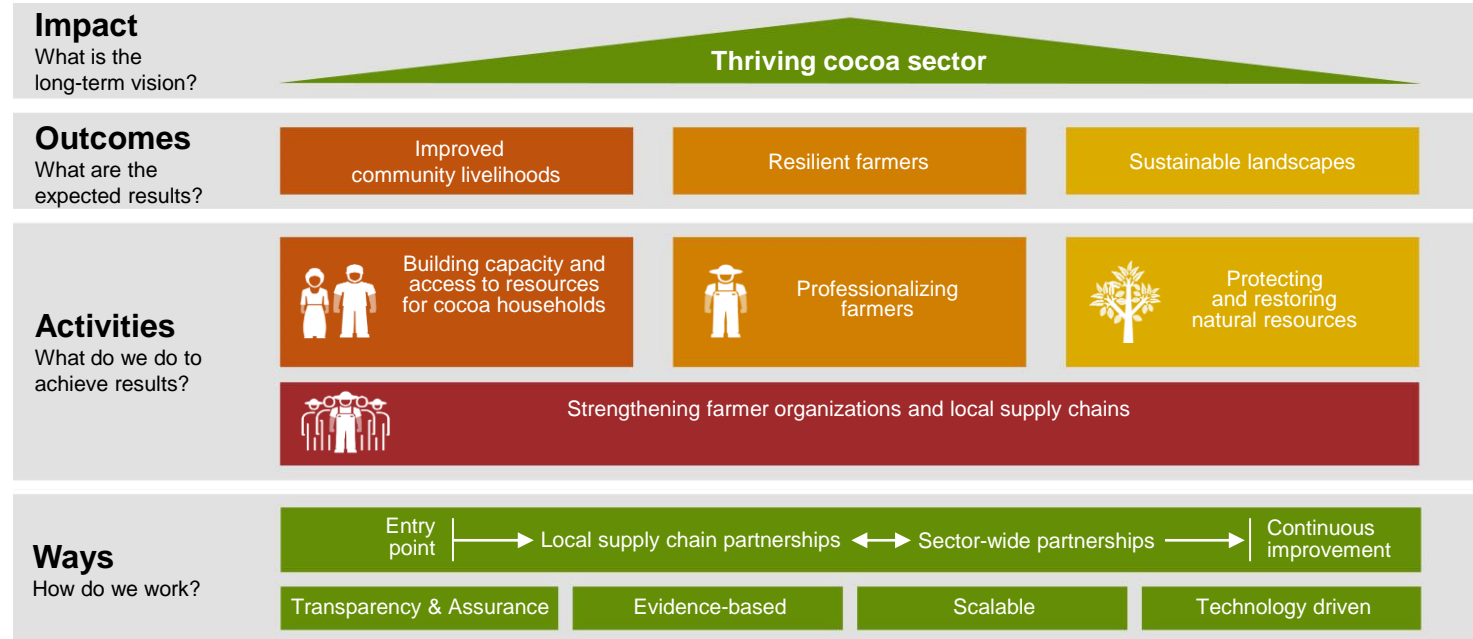


+48%
Environmental

growth of food & beverage launches with ethical claims.³

The Cargill Cocoa Promise Theory of Change

We build on the ground, leveraging established relationships and focused activities that will improve the resilience of communities, farmers and landscapes.



Why we do traceability at Cocoa Farm?

✓ Gain insight into our supply chain

Understand where our
cocoa was grown
No deforestation
Good Agricultural
practices,
Proper
fertilizer/pesticide use,
no child labor

Achieve certification
under UTZ, Rainforest
Alliance, or Fair Trade

premiums to
farmers who
participate in our
programs

How we do traceability

- CocoaTrace platform from PT Koltiva
- Collect data 25000+ farmers on farm, working with over 300 field agents
- Map all farms, GPS points and farm boundaries (called polygons)
- Record sales volumes from farmers, matching volumes to the data record of the individual farmers
- Sync all data into a comprehensive database, from which we export data to:
- Verify that we are meeting the rules of [mass balance](#) traceability systems
- In the middle of following year, farmers with smart phones will access their own records, receive notifications and reminders about on-farm good practices, and verify their sales data, making our traceability systems even stronger. The app is called **FarmCloud**

The Koltiva Supply Chain Application Ecosystem

Cloud based web- and mobile software applications for project and supply chain management

FarmXtension

Field Agents collect data from farmers and businesses along the supply chain and provide capacity development services



FarmCloud

Farmers can access their farm and sales data, authenticate transactions, access service providers, and request farm support from Field Agents



FarmRetail

Agri-input shops manage their online marketplace, stock, and business administration.



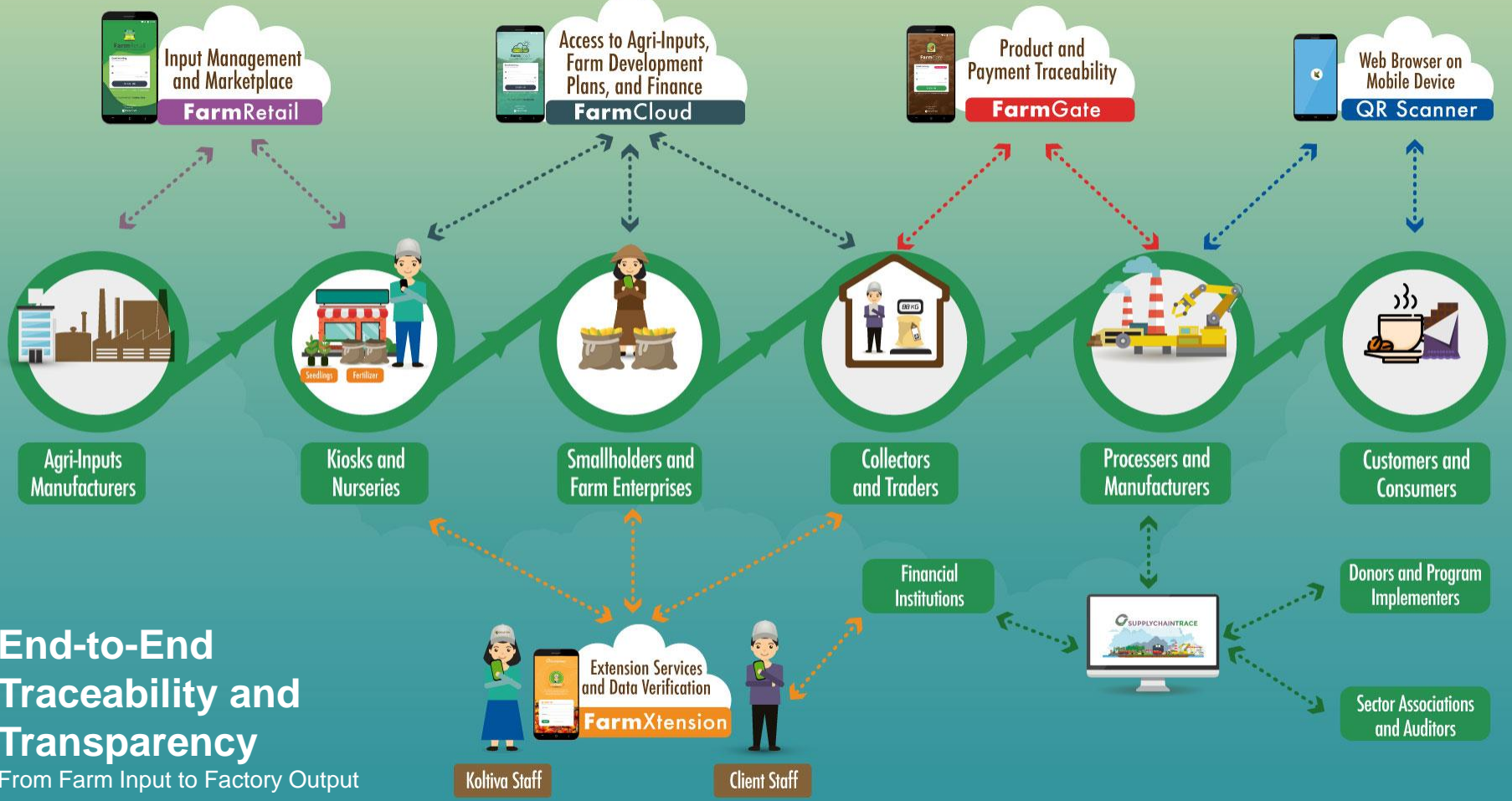
FarmGate

Collectors and traders record transactions for traceable and certified commodities.



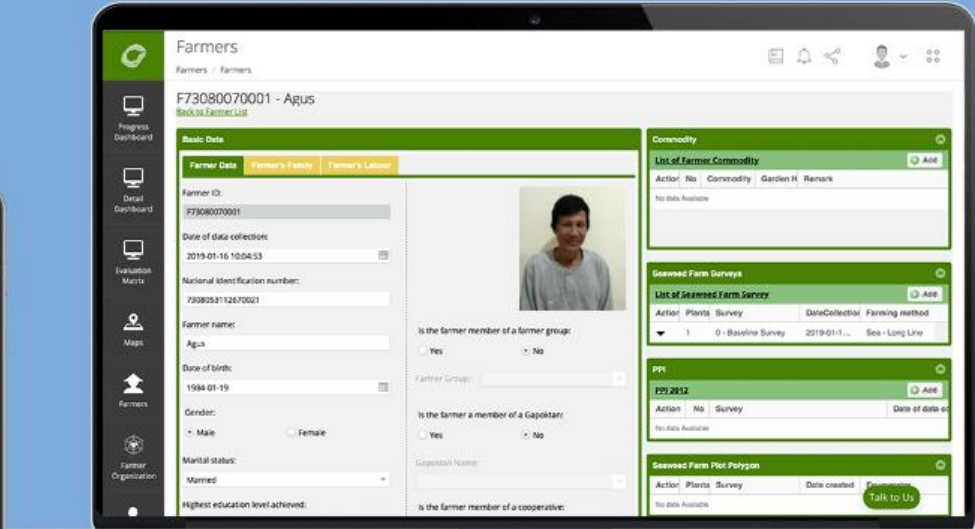
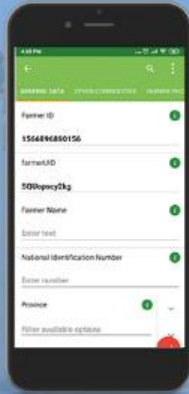
FarmProcessing

Internal Process management from Factory Gate to Dispatch of finished or semi finished goods



End-to-End Traceability and Transparency

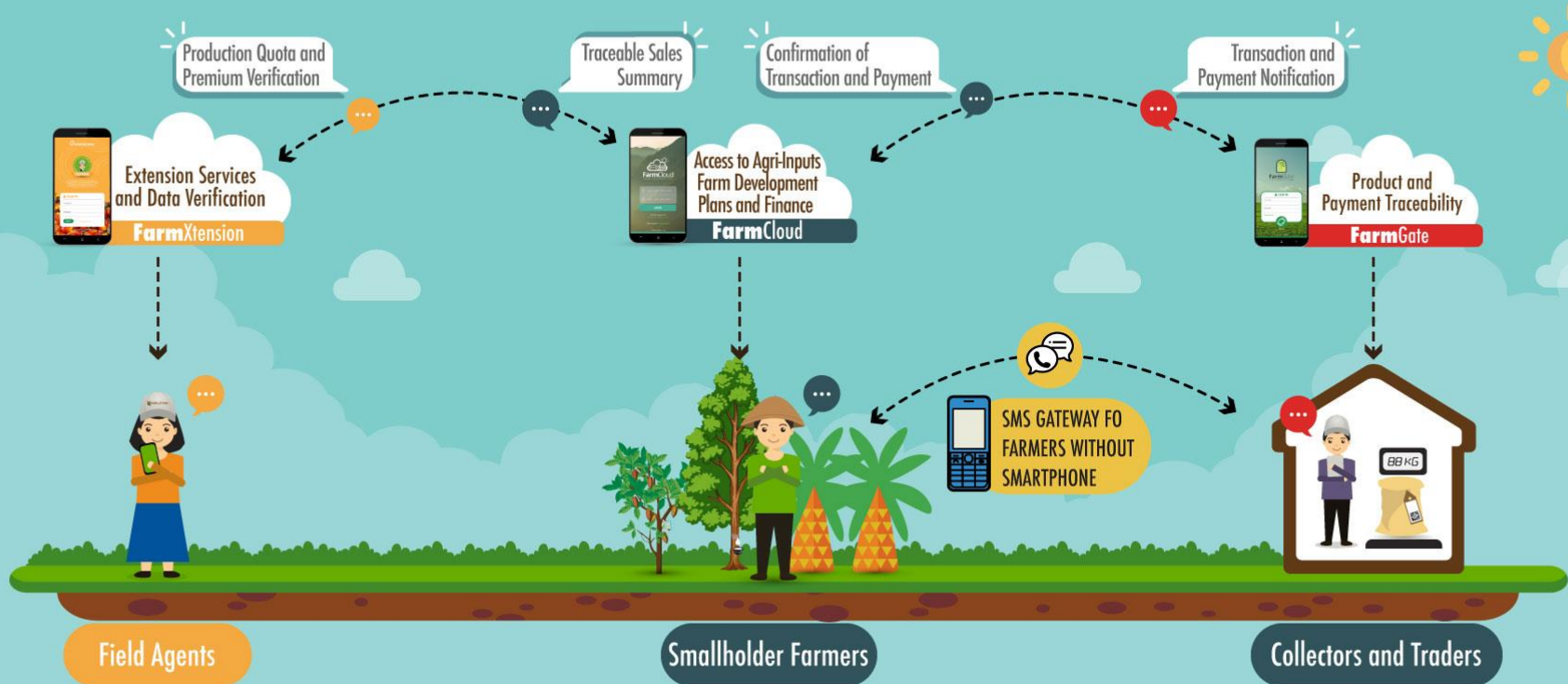
From Farm Input to Factory Output

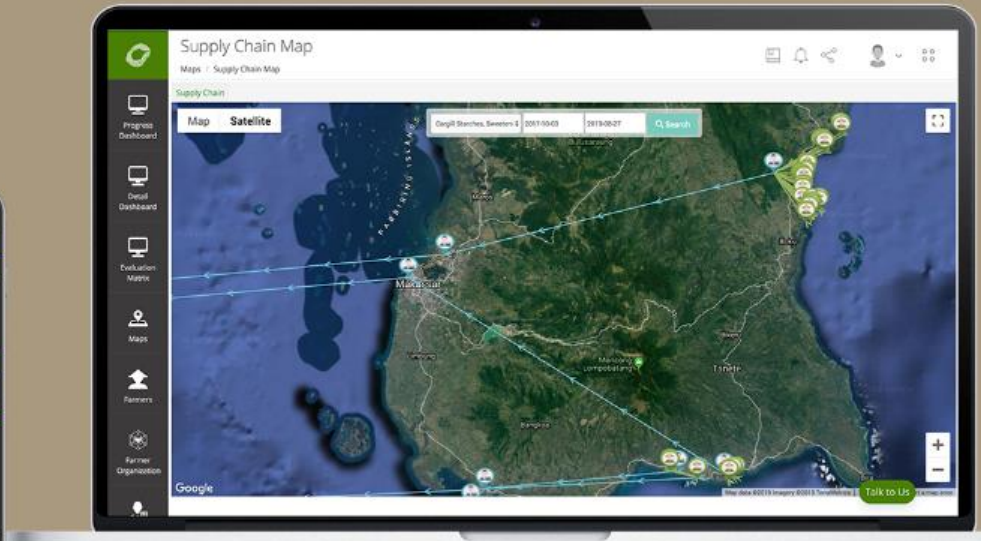
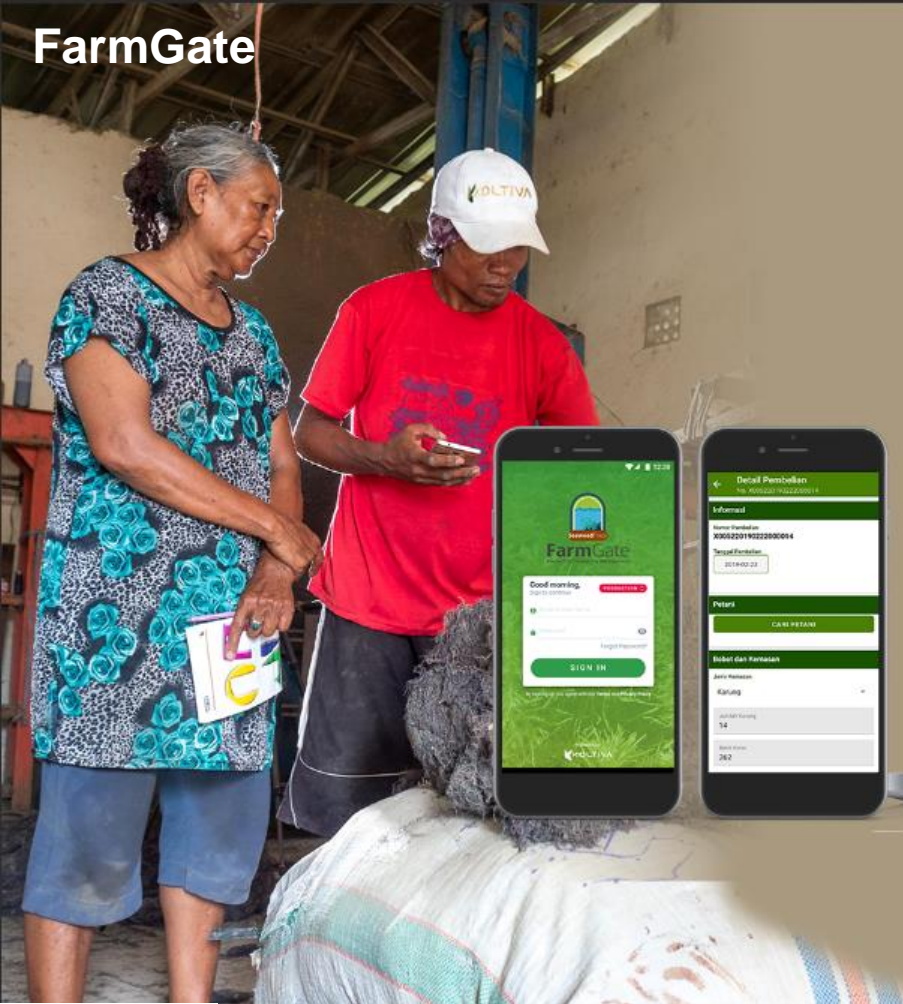


Responsible Business Supply Chains integrating Payment and Transaction Verifications



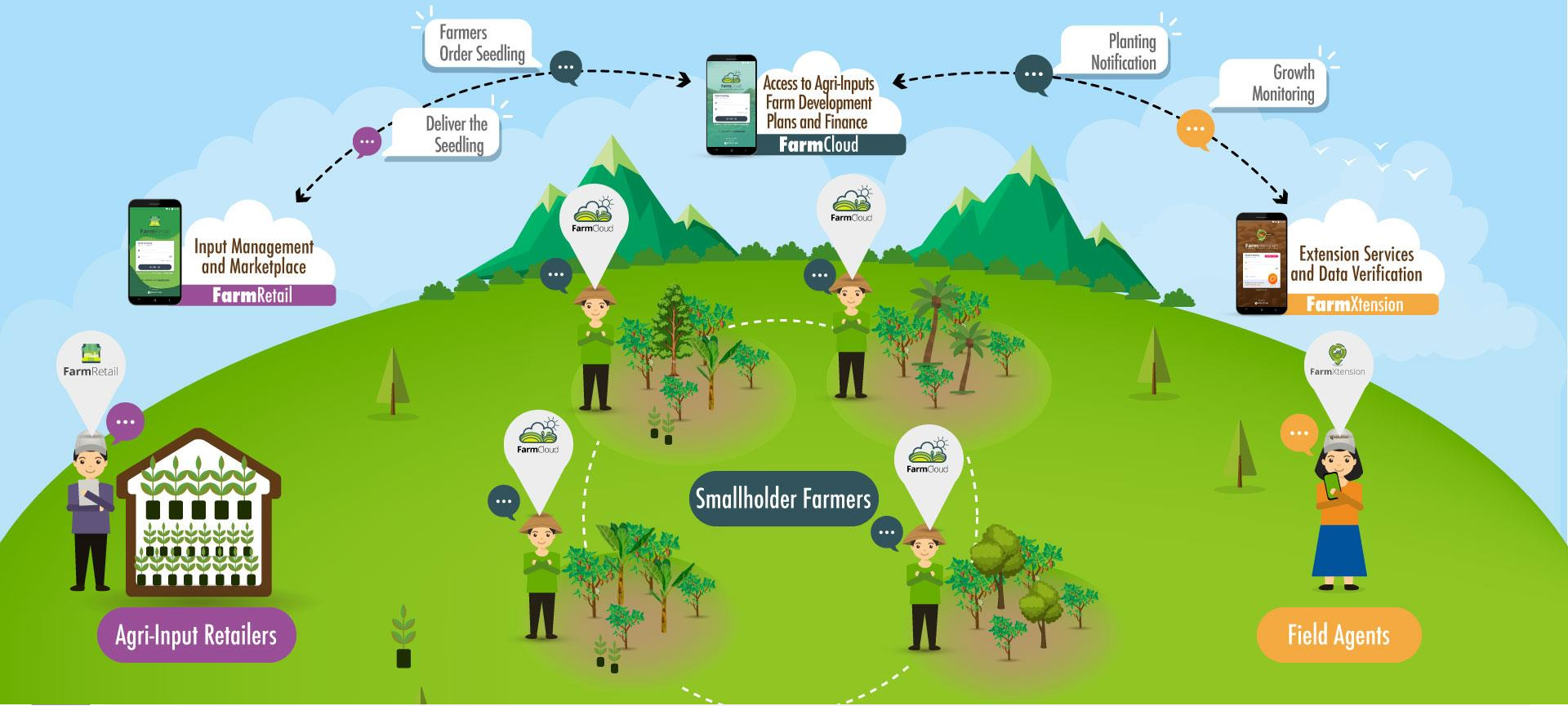
FarmCloud - We create Loyalty, Transparency, and Traceability in the Last Mile





Integration of Input Distribution Chains into Sustainable Commodity Supply Chains

FarmRetail - Verified End-to-End-Traceability through a monitored closed loop Ecosystem



FIA Collaboration with ADB

- Traceability for the *GMS Sustainable Agriculture and Food Security Program (SAFSP)*

ENSURING FOOD SAFETY ALONG SUPPLY CHAIN



- Increasingly complex supply chains
- Traceability ensures information is transmitted across supply chain processes
- Technologies such as barcoding can enable traceability through the collection, sharing and storage of traceability data during the product's movements between buyers and sellers
- Recall can take place effectively if a safety issue is identified by retrieving the necessary data



TRACEABILITY PILOT PROJECT

**Farm-to-fork International
Recognised Barcoding Pilot
Programme in GMS Countries**

Process: Working with Asian Development Bank (ADB) and Ministries of Agriculture in GMS Countries¹

Working with ADB to strengthen local knowledge and adoption of traceability for agri-food products traded domestically and cross-border





Traceability projects in Collaboration with ADB

FIA presented recommendations on increasing the safety and quality of food products from GMS in terms of **legislation, laboratory capacity building, harmonised food safety standards, traceability, and risk communication.**

Stakeholder consultations were held in Phnom Penh, Vientiane, Hanoi, Nanning, Nay Pyi Taw.

Natural Garden in Cambodia was selected as the first pilot company. **Pre-pilot preparation was performed from March-June 2018**

Apart from these existing pilot programmes. There is **potential to carry out wider range of initiatives** boosting the traceability for food chains in GMS countries in the next proposed **SAFSP project**



2017

2018

2019

2020

A **traceability project (Training on traceability scheme that incorporates globally recognised open barcoding standards)** was proposed with the support from GS1 (FIA industry partner who experts in food chain traceability). A series of different activities were planned under this project.

Capacity building were **carried out** for the selected participants from Cambodia, Laos, Vietnam, China, and Myanmar.

Dalat Milk in Dalat, Vietnam was selected for conducting the subsequent pilot after Cambodia (**15 April to 30 June 2019**).



Helping the world *thrive*