Strengthening Sustainable Supply Chains for Smallholders

GRAS Global Risk Assessment Services
2020

GRAS
Global Risk Assessment Services

Gefördert durch:
Bundesministerium für Ernährung und Landwirtschaft
aufgrund eines Beschlusses des Deutschen Bundestages
FNR

Why is it important to have a closer look into smallholder production?

Important producer group in agricultural sectors

Direct economic pressure and low adaptation capacity

Limited market and financial access

Inadequate agricultural practices and low yields

Low yields

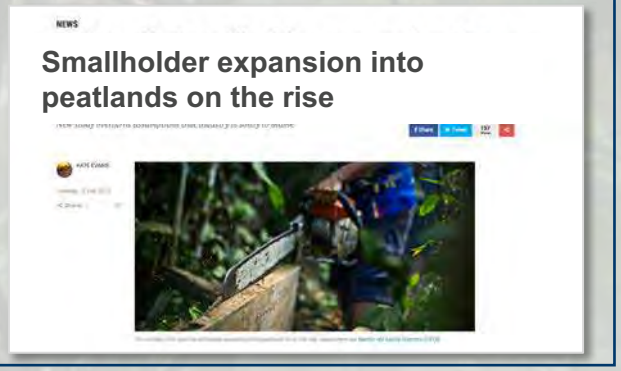
Low incomes

Climate change

Growing demand

Expansion of production areas

Pressure on natural resources and deforestation

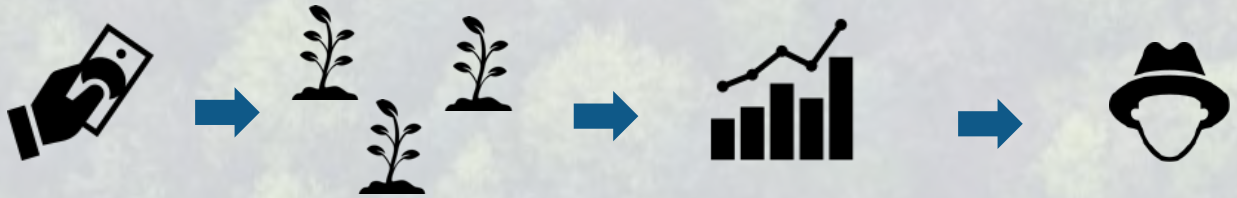


The smallholder integration into sustainable supply chains reduces the pressure on natural resources

Increase traceability

- Collecting farmer data
- Mapping (e.g. polygons)
- GAP training
- Implementing GAP measures
- Tracking deliveries

Improvement of livelihood for smallholders



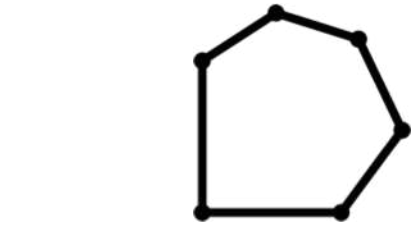
- **Facilitate access to finance**
- **Replanting and improvement of management practices**
- **Increase yield and product quality leading to price premiums**
- **Increase smallholders income and resilience against hazards**

Reduce pressure on natural resources and deforestation

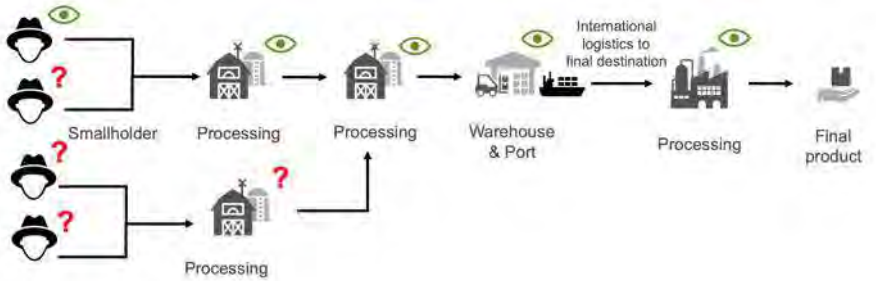
The key for traceability is mapping smallholder fields and tracking of delivery information

Traceability

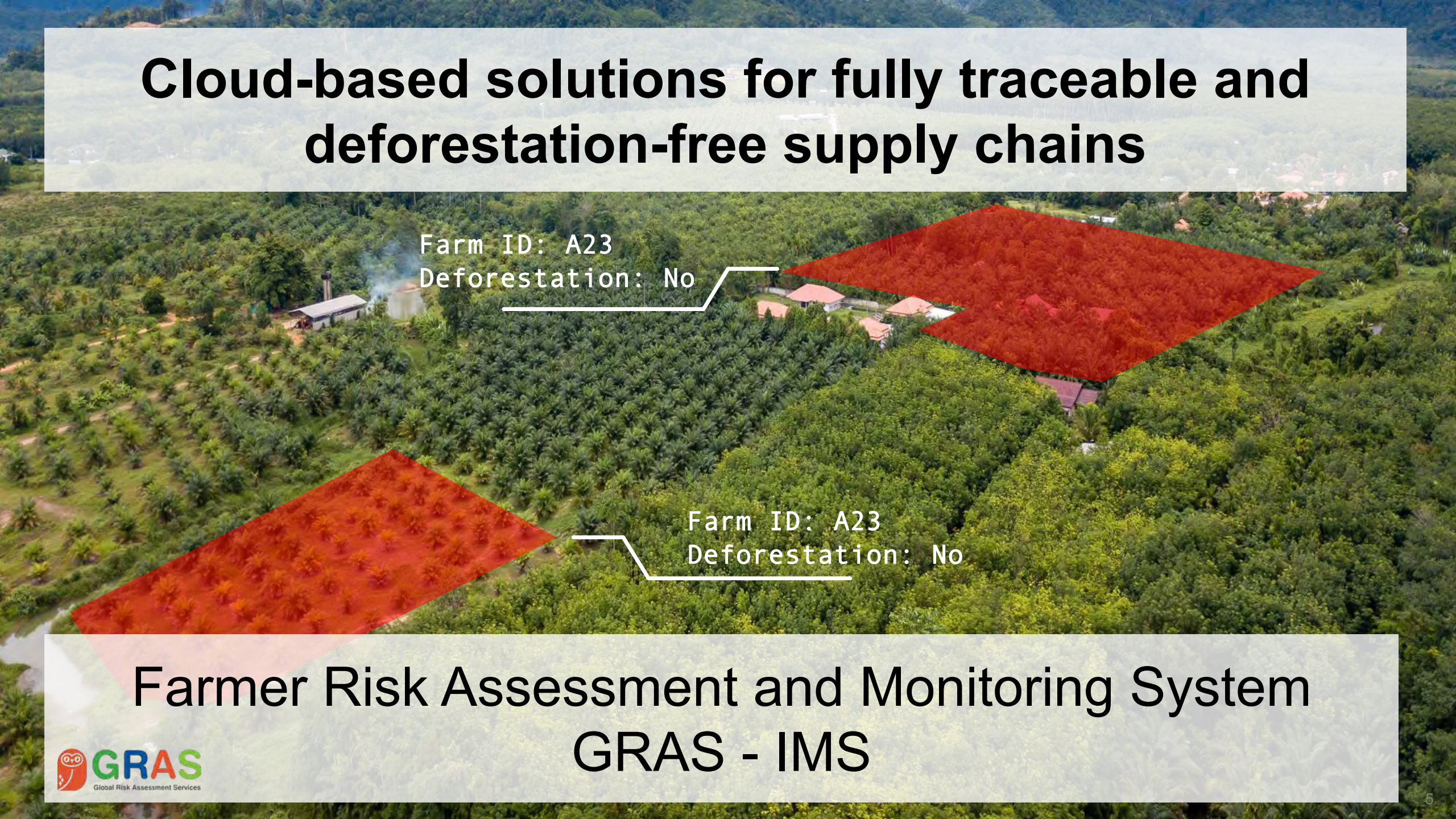
Mapping



Tracking



Cloud-based solutions for fully traceable and deforestation-free supply chains



Farmer Risk Assessment and Monitoring System
GRAS - IMS

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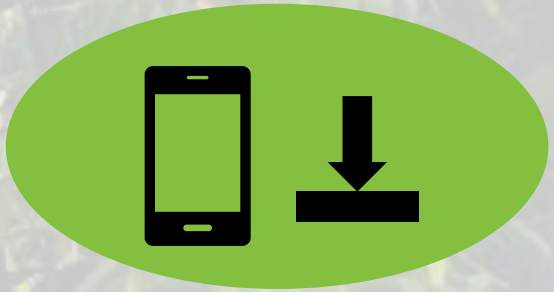
Implementing smallholder traceability not necessarily requires huge investments

All you need is a smartphone and a user account



Download Apps

Create user account

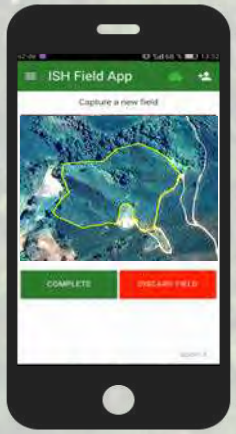
Participate in tutorial

Implement traceability

Traceability systems provide several benefits for users

The GRAS Traceability System (IMS) offers….

Mapping



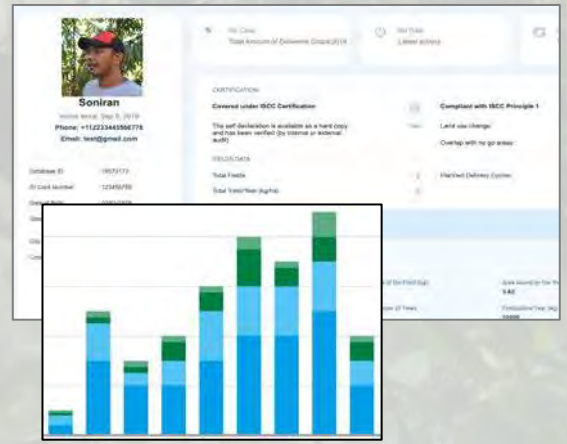
Smallholder App

Integrated Sustainability Assessment

Tracking

Tracking App

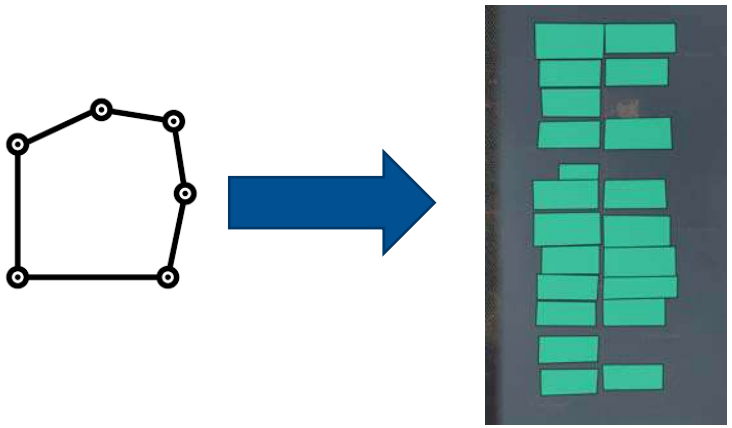
Management System (IMS)



...at the same time

Mapping is required by many sectors and goes along with manifold benefits

Mapping = Identification of farmer fields



ISCC requires **polygon mapping** for **independent smallholder** certification

End-users often **ask for polygons** of smallholders and want to **avoid** sourcing from suppliers linked to **deforestation**, **fires** and **biodiversity loss**

However, especially for **smallholders**, mapping is **complex** and **time-consuming**

Although mapping is time-consuming it provides manifold benefits

Mapping allows to identify whether smallholders are compliant with sustainability criteria

Fires

Deforestation

Check collected polygons against sustainability criteria

There are different options for mapping: Collecting addresses, point coordinates and polygons

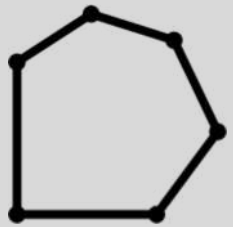
Mapping – How to do it right?

Different options for mapping

Addresses

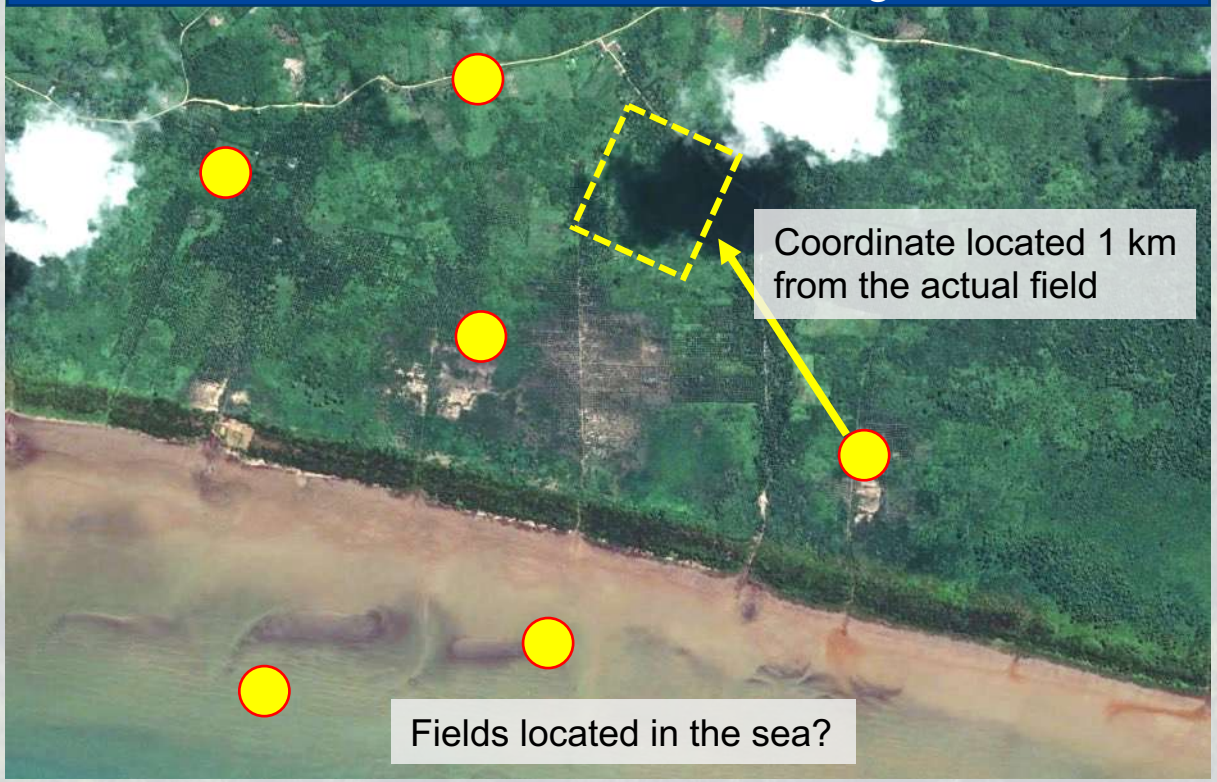
Point coordinates

Polygons



Addresses and point coordinates are often inaccurate and located at wrong locations

Point coordinates could be shifted
Addresses could refer to the village center



Different options for mapping

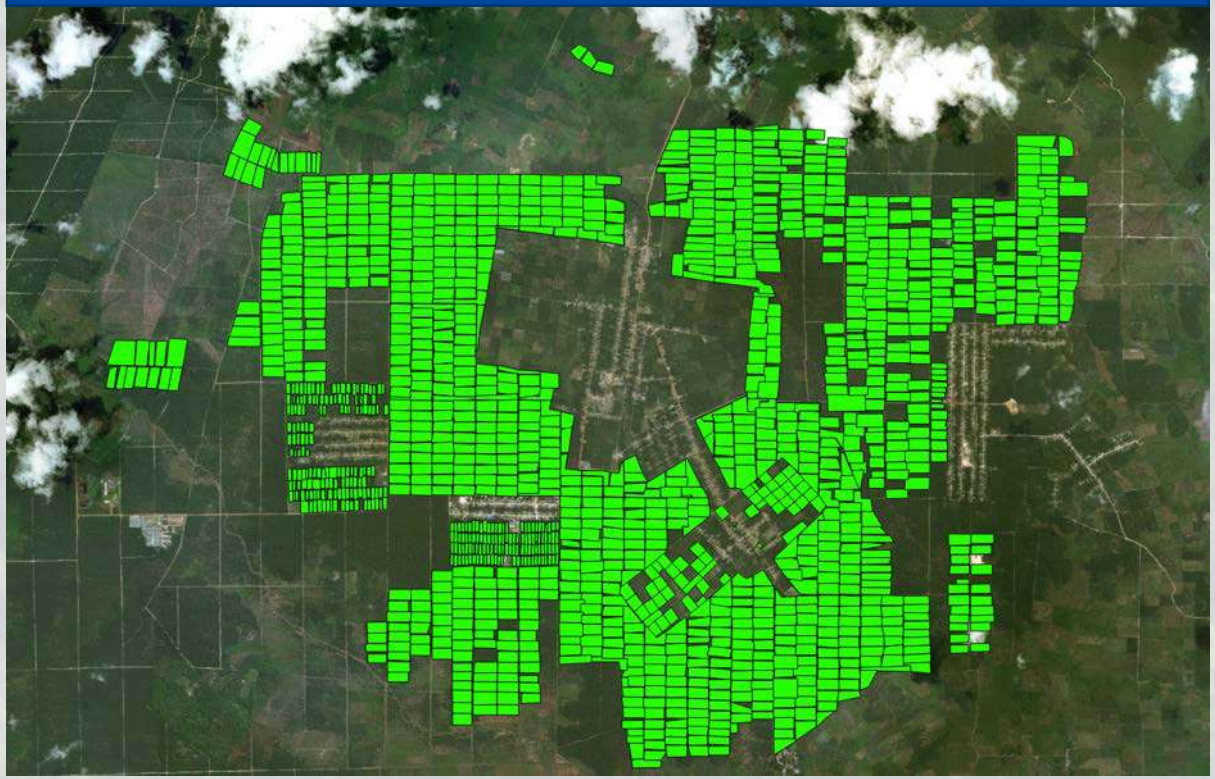
Addresses

Point coordinates

Polygons

Therefore, the collection of field polygons is essential

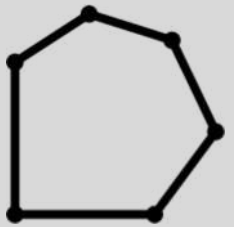
Mapped polygons



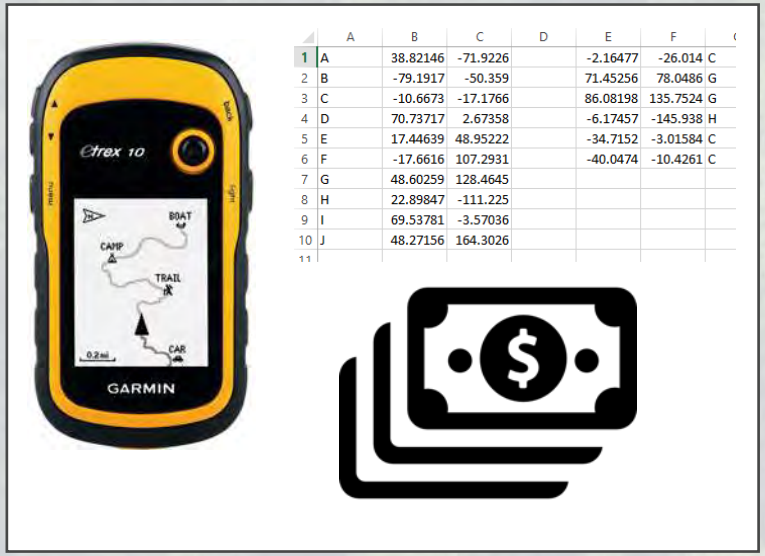
Benefits of polygon mapping

- Precise location
- Yield estimation
- Calculation of area size
- Risk assessment
- Monitoring

Polygons

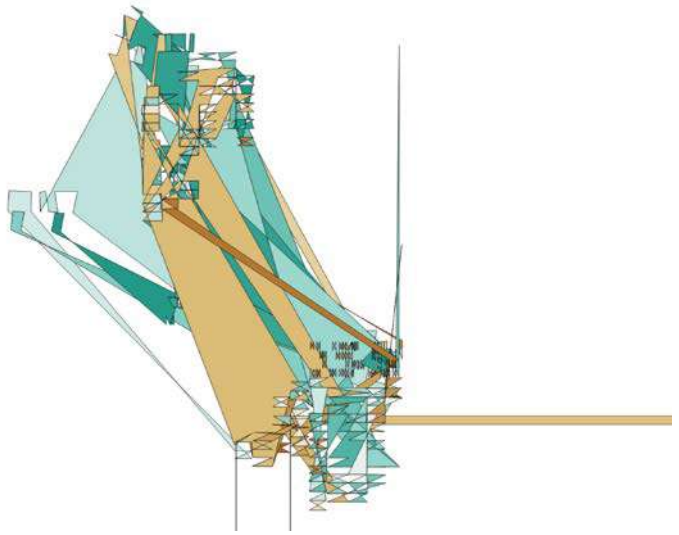


Different technologies are available for polygon mapping - Expert mapping with GPS device

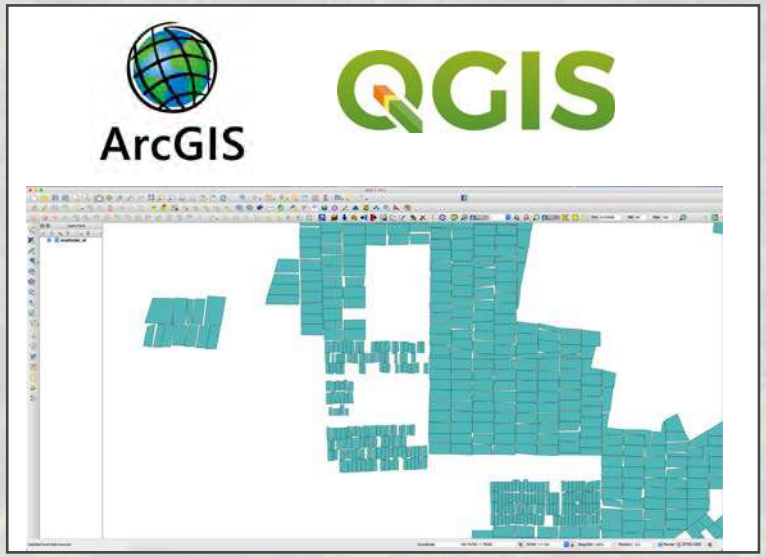


	A	B	C	D	E	F	
1	A	38.82146	-71.9226		-2.16477	-26.014	C
2	B	-79.1917	-50.359		71.45256	78.0486	G
3	C	-10.6673	-17.1766		86.08198	135.7524	G
4	D	70.73717	2.67358		-6.17457	-145.938	H
5	E	17.44639	48.95222		-34.7152	-3.01584	C
6	F	-17.6616	107.2931		-40.0474	-10.4261	C
7	G	48.60259	128.4645				
8	H	22.89847	-111.225				
9	I	69.53781	-3.57036				
10	J	48.27156	164.3026				

- **GPS devices** are expensive and often not available
- GPS data collection requires certain amount of **experience**



- Mapping results could be **erroneous** / **corrupt**
- **Link** between **field** and **farmer** has to be added **manually**

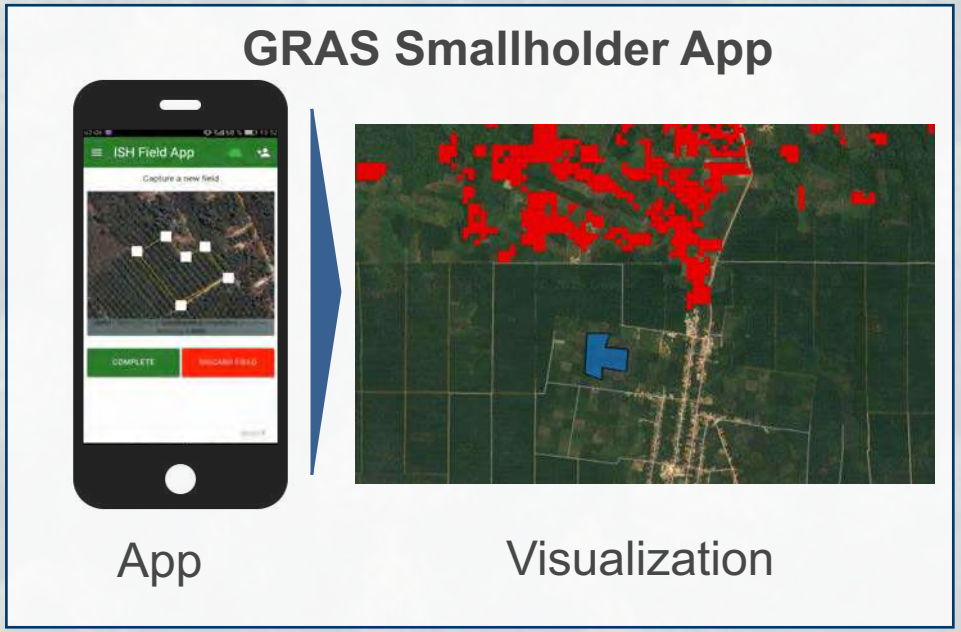


- **GIS knowledge** required to correct errors → Often not available
- Experts are **expensive** and **rare**
- Data correction is **time-consuming**

Mapping only possible through experts → expensive

Different technologies are available for polygon mapping – GRAS Smallholder App

Collect field outlines and additional data



Mapping can be conducted by non-experts

State-of-the-art data collection

Secure data upload to the cloud

Customizable according to user's needs

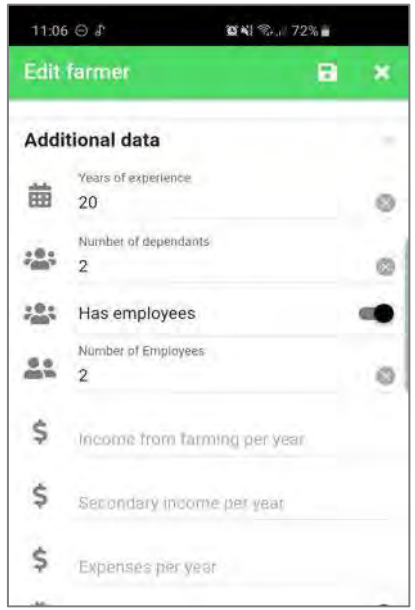
The use of the GRAS Smallholder App also allows to collect additional data and pictures

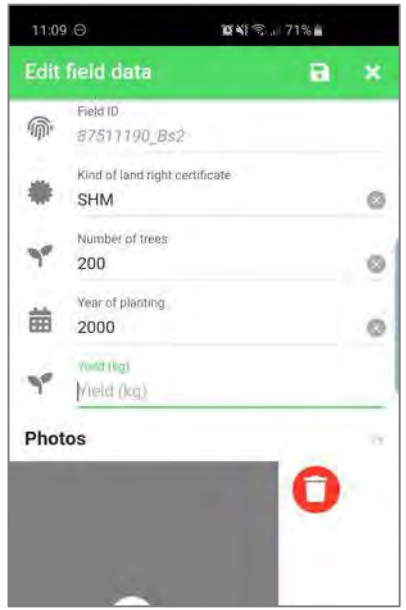
Take pictures

Facilities

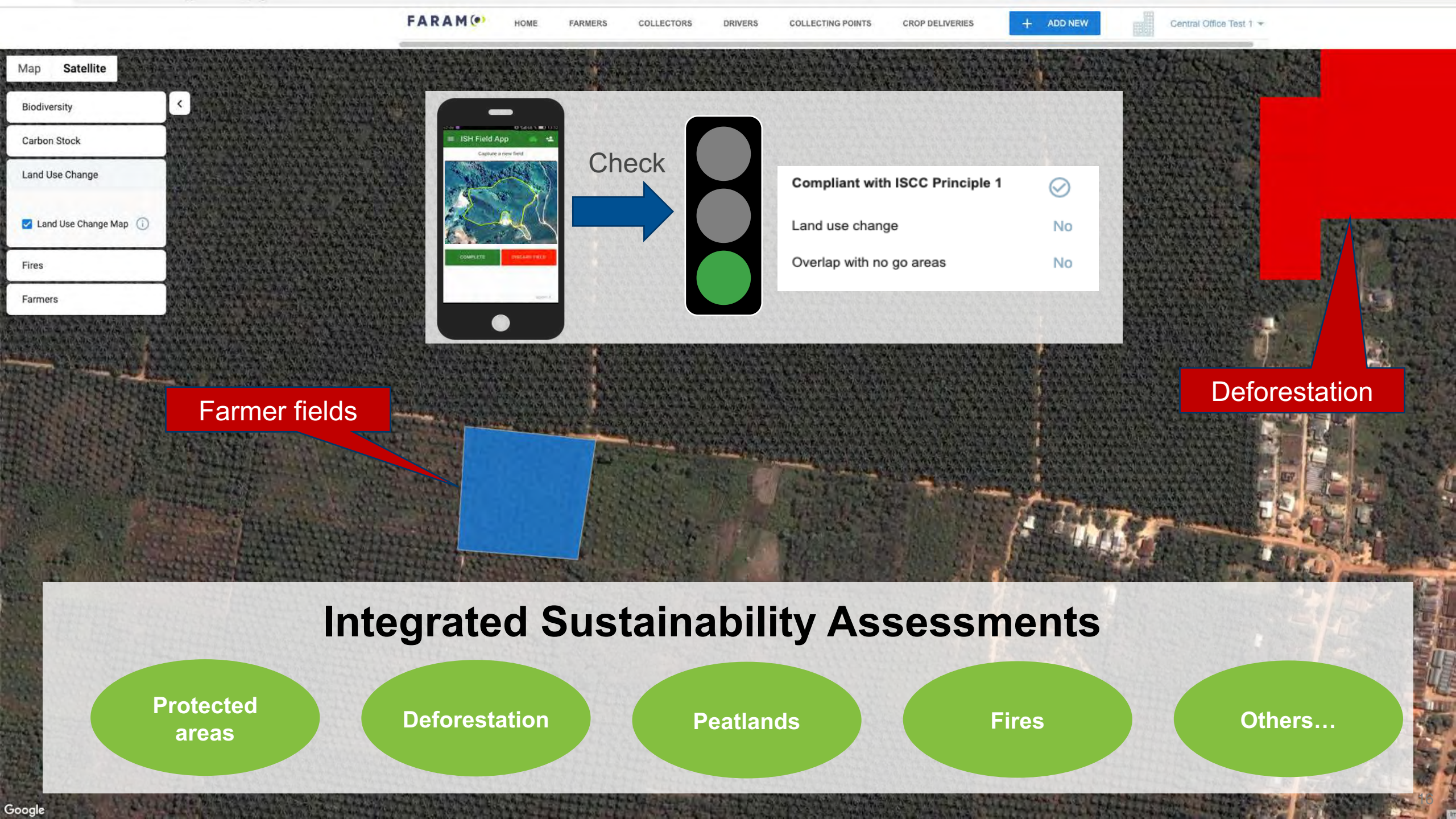
Diseases

Collect farmer data



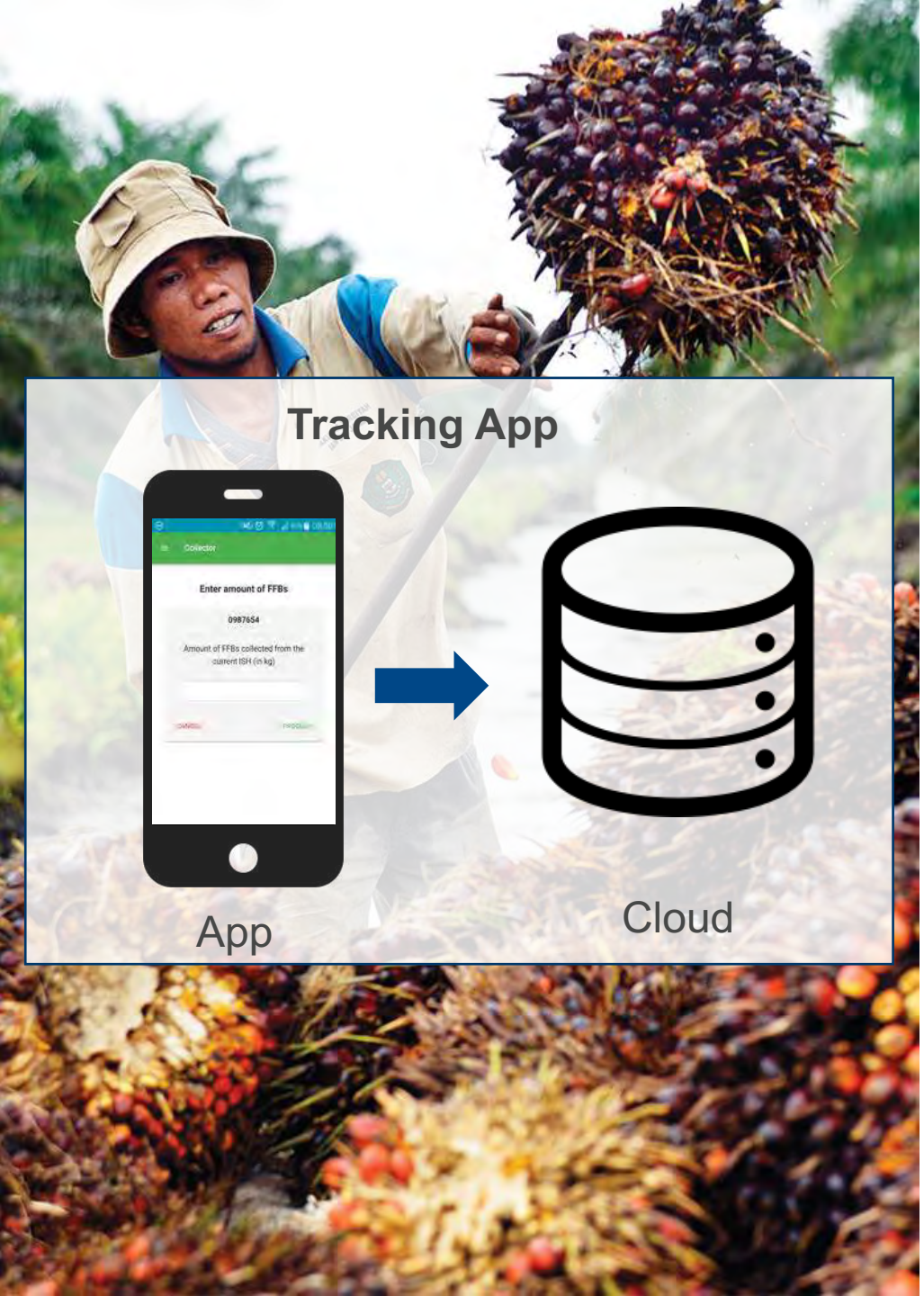


Identify problems and implement measures



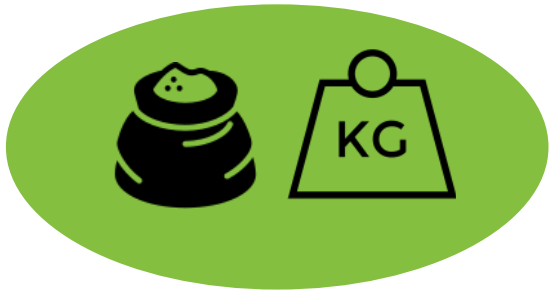
Integrated Sustainability Assessments

- Protected areas
- Deforestation
- Peatlands
- Fires
- Others…



Tracking:

The Tracking App allows to trace crops back to smallholder fields



Identify the **amount** of delivered crops **per smallholder**

Register entire **delivery tours** and data at the **recipient** (e.g. mill)

Collect information on farmers' **delivery cycles**

Acts as smallholder IMS

Fully traceable supply chains

Soniran

Active since: Sep 5, 2019

Phone: +112233445566778

Email: test@gmail.com

Database ID:	76573173
ID Card Number:	123456789
Date of Birth:	03/01/1978
Street:	SIDO MUKTI RT 004/001
City:	Sido Mukti
Country:	Indonesia

Farmer's QR code

No Crop

Total Amount of Delivered

CERTIFICATION

Covered under ISCC Certificati

The self declaration is available a and has been verified (by internal audit)

FIELDS DATA

Total Fields

Total Yield/Year (kg/ha)

76573173_15695675239

FIELD DATA

Type of Plant/Crop

Palm Oil

Year Of Planting

1997

Owner of the Field

No

LAND RIGHT CERTIF

The **GRAS IMS** allows the….

- **Visualization of collected data**
- **Analysis of farmer data**
- **Identification of gaps, required trainings and peer learning**
- **Monitoring and performance improvement**

Sonira

Active since: Sep

Uploaded pictures

Database ID:	76573173
ID Card Number:	123456789
Date of Birth:	03/01/1978
Street:	SIDO MUKTI RT 004/001
City:	Sido Mukti
Country:	Indonesia

Access basic data

QR codes for farmer identification

No Crop
Total Amount of Delivered Crops/2019

No Date
Latest activity

6.26
Total Field Size (ha)

Check of environmental criteria

CERTIFICATION

Covered under ISCC Certification	✓
The self declaration is available as a hard copy and has been verified (by internal or external audit)	Yes

Compliant with ISCC Principle 1	✓
Land use change	No
Overlap with no go areas	No

FIELDS DATA

Total Fields	2	Planned Delivery Cycles	0 kg every 0 days
Total Yield/Year (kg/ha)	0		

569567523911

Field information

FIELD DATA

Type of Plant/Crop	Area of the Field (ha)	Area based on the Polygon (ha)
Palm Oil	4	3.82
Year Of Planting	**Number of Trees**	**Production/Year (kg)**
1997	600	68400
Owner of the Field		
Yes		

LAND RIGHT CERTIFICATE

The GRAS IMS also enables constant monitoring

Fires

- Fire data updated on a daily basis and alert

Land Use Change

- Sustainability monitoring: land use change detection

Traceability systems are not necessarily isolated solutions and tie users

The GRAS IMS is flexible and allows communication with other systems

- Apps can be adjusted to the user needs

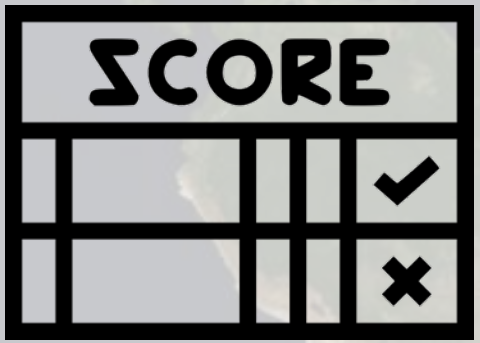
- Data up-and download easily possible

- Integration of algorithms
- Customized analysis and reporting

- Data exchange with customer IT systems

The tool will be further developed in future

Possible extension options are…



Scorecards

Payment system

Weather information

Market information

Many thanks for your attention!

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