Blockchain and the changes for sustainability schemes

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SCTA
SCHWEIZERISCHE KAFFEEHÄNDLER VEREINIGUNG
ASSOCIATION SUISSE DES NÉGOCIANTS EN CAFÉ
ASSOCIAZIONE SVIZZERA DEI NEGOZIANTI IN CAFFÈ
SWISS COFFEE TRADE ASSOCIATION

MAKING WAVES

Content

- Who is Meo Carbon Solutions?
- What is the state of affairs of 4C?
- What are the key sustainability challenges in the coffee sector?
- How can modern technologies like blockchain support the implementatio of sustainable and deforestation free supply chains in the coffee sector?

Meo Carbon Solutions – Who we are

- Meo Carbon Solutions (MCS) is an **independent** management consultancy based in Cologne
- **Sustainability** is the core focus of MCS's work
  - Data collection and Monitoring (e.g. land use change, life cycle assessments)
  - Supply chain implementation (e.g. risk assessments, traceability, integration of smallholders, certification)
  - Understanding the impact (e.g. policy consulting, market analysis, scenarios)
- MCS has developed i.a. **ISCC**, a globally leading certification scheme for agricultural commodities
- Comprehensive **experience and knowledge** will be made available for 4C to support the further development of the scheme

Update: Actual 4C Facts and Figures

4C coffee produced in **28** countries

500,000+ farmers are producing 4C coffee

23 cooperating certification bodies

No cherry picking for low hanging fruits

Implements **sustainable solutions** for the entire sector

Innovative **risk assessment** tools

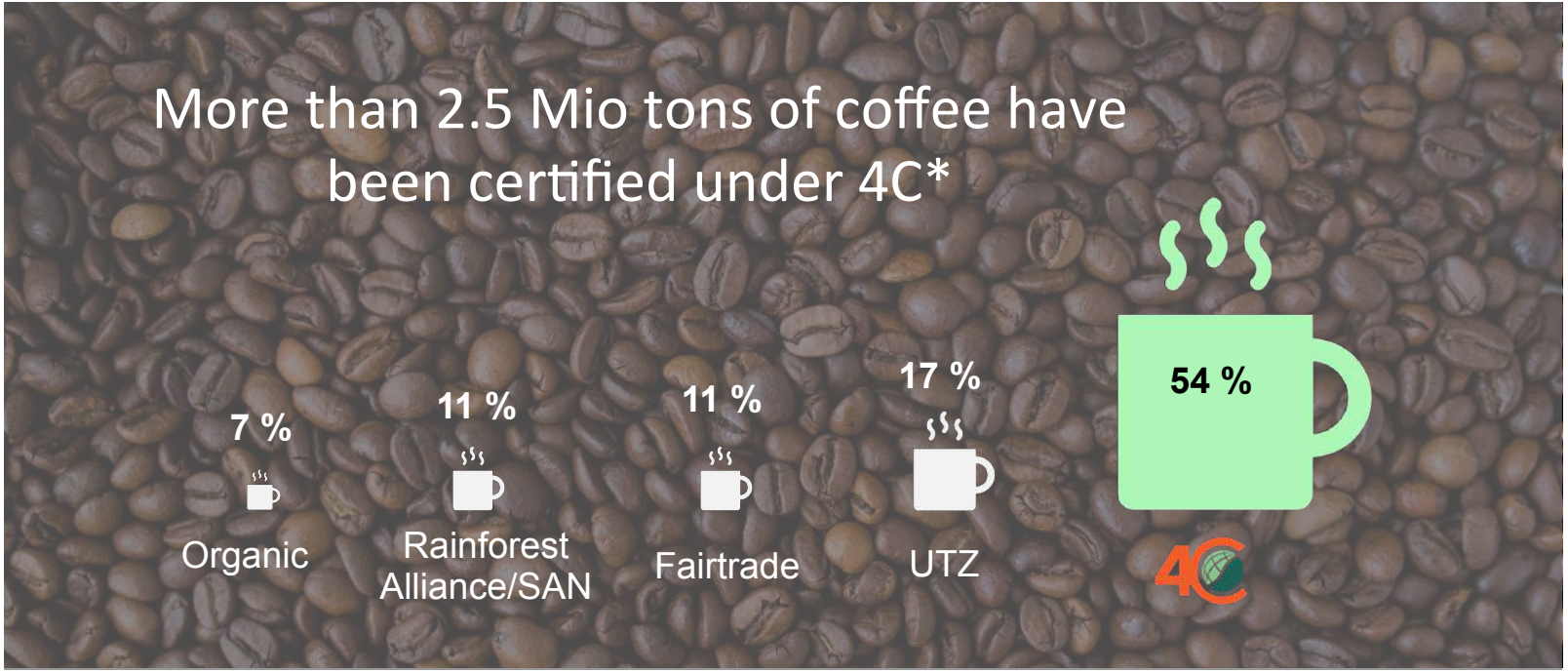
Effective and **cost efficient** solutions

Recognized by SAI Silver, GCP and IEH

Strict quality and **integrity** management

Effective **improvement plans** guarantee positive impact

4C is a reliable and cost-efficient mainstream solution in the sustainable coffee market



*2015 figures. Source: ITC – The state of sustainable markets 2017: Coffee production volume by standard

Leading brand owners trust 4C compliant coffee

What are key sustainability challenges as seen by major players in the coffee market?

“Traceability in supply chains is key.”

„Smallholders need market access.“

“How to improve yields, income and living standards of smallholders?”

“Tackling deforestation in our supply chains is most important for us.”

„What makes a label reliable and responsive – and cost efficient at the same time?“

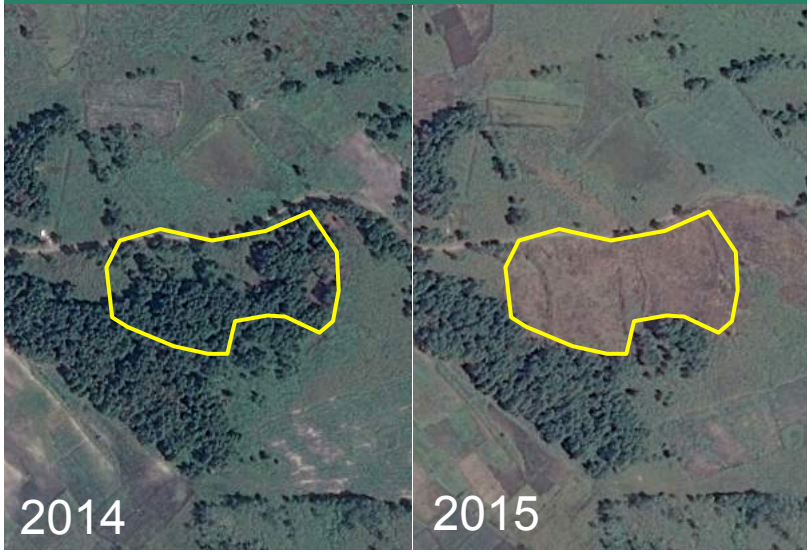
“Child and Forced Labor are unacceptable practices.”

„Social and environmental impacts of coffee production must be equally addressed.“

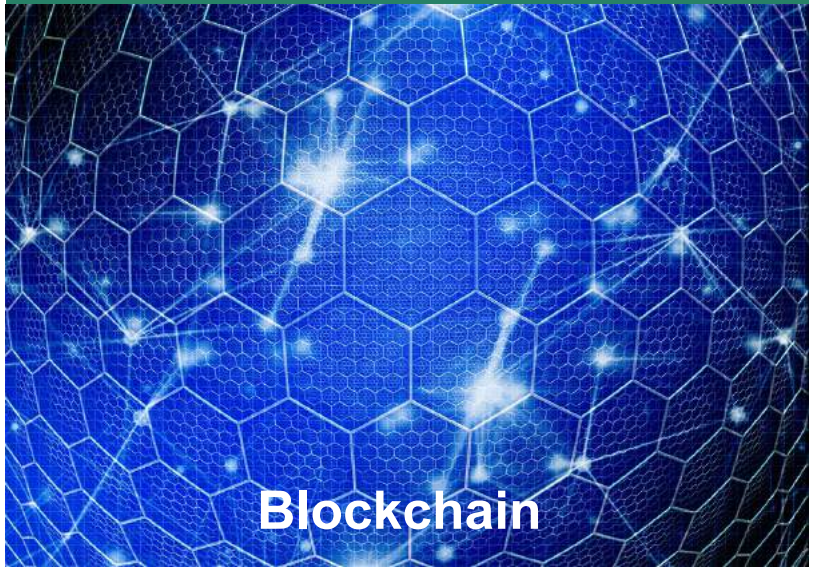
“How can consumer trust in the label be established?“

How can new technologies support certification to address those challenges?

Verification on coffee production level



Traceability through the supply chain



Walmart has told all its suppliers of leafy greens to sign up to its blockchain solution. Coffee to follow?

"Walmart expects all suppliers of fresh leafy greens to Walmart stores and Sam's Club wholesalers to have end-to-end traceability through blockchain by the end of September 2019."

Supply Management, 3 October 2018

The move follows an outbreak of E. coli in lettuce earlier this year

Walmart tells leafy greens suppliers to use blockchain

posted by *Francis Churchill* in *Supply chain, Technology*

3 October 2018

Walmart has told all its suppliers of leafy greens to sign up to its blockchain solution by this time next year.

In an open letter, the retailer said it expected all suppliers of fresh leafy greens to Walmart stores and Sam's Club wholesalers to have end-to-end traceability through blockchain by the end of September 2019.

The initiative, called the Walmart Food Traceability Initiative, hopes to improve

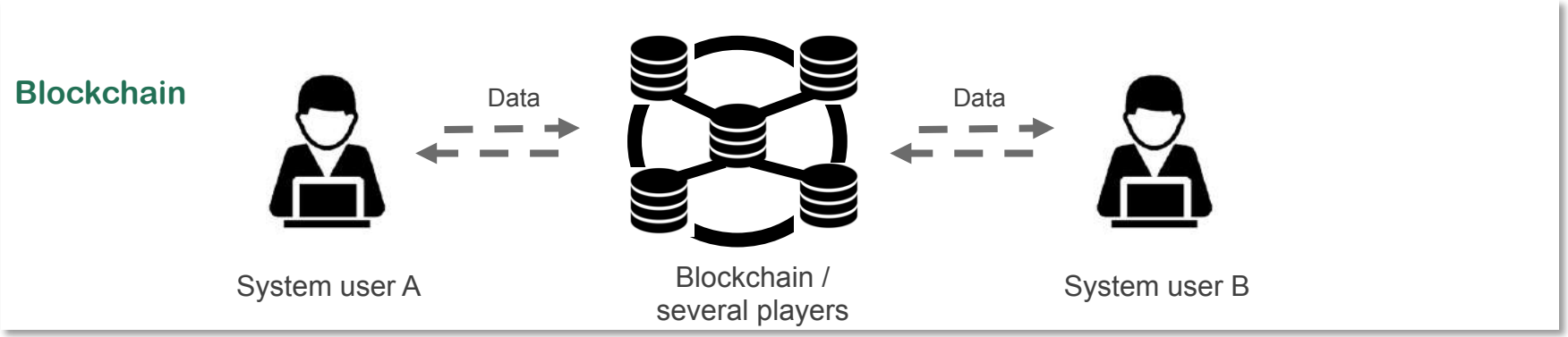
Popular Articles

- Walmart tells leafy greens suppliers to use blockchain
- The top six challenges facing procurement
- Fashion firms quizzed on supply chains
- Problems with logistics system

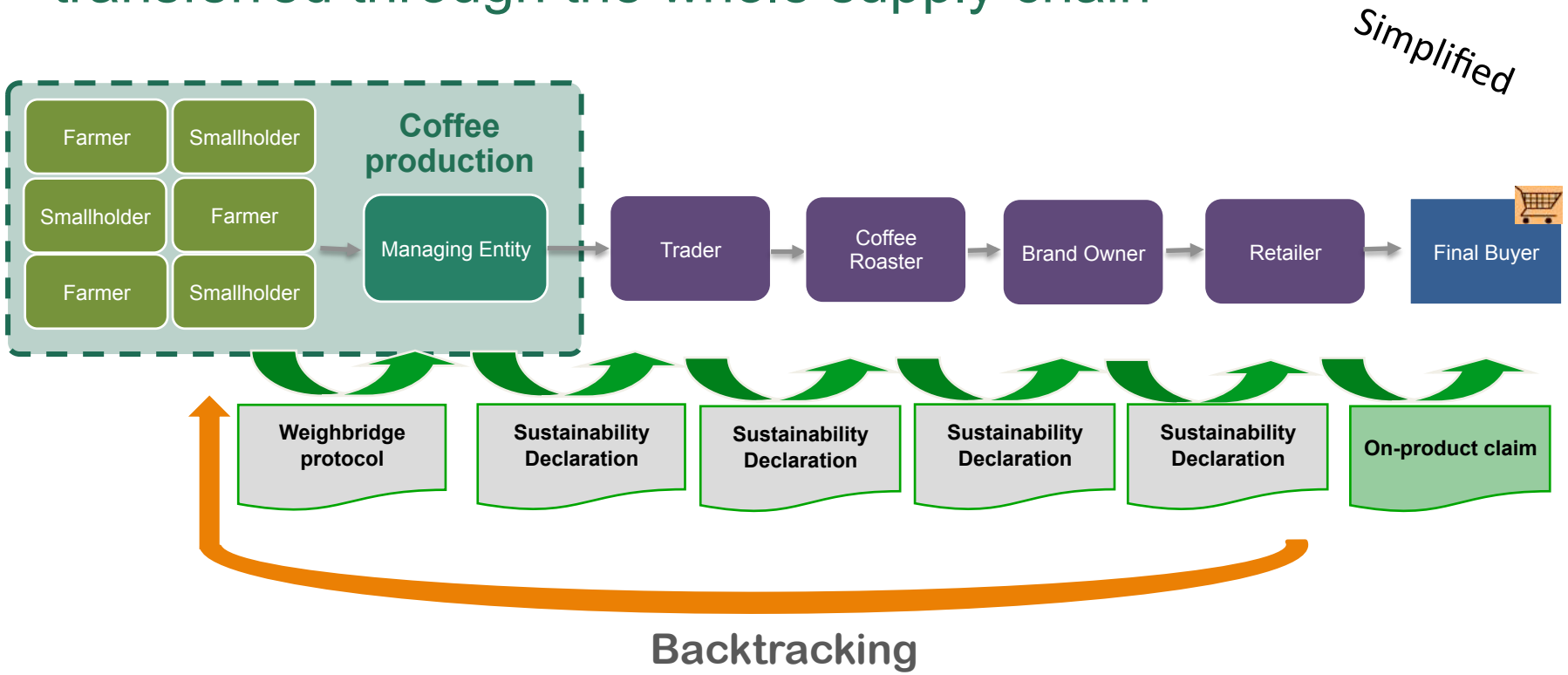
Blockchain is a technology that can support the back-tracking of products in the food chain

- Blockchain allows the secure tracking of products from the shelf back to the plantation
- Blockchain technology works with a decentralized system that leads to sublime fraud-resistance
- The technology can be included into running company systems and increases efficiency and security
- Pilot applications are running in different sectors, e.g. fish sector

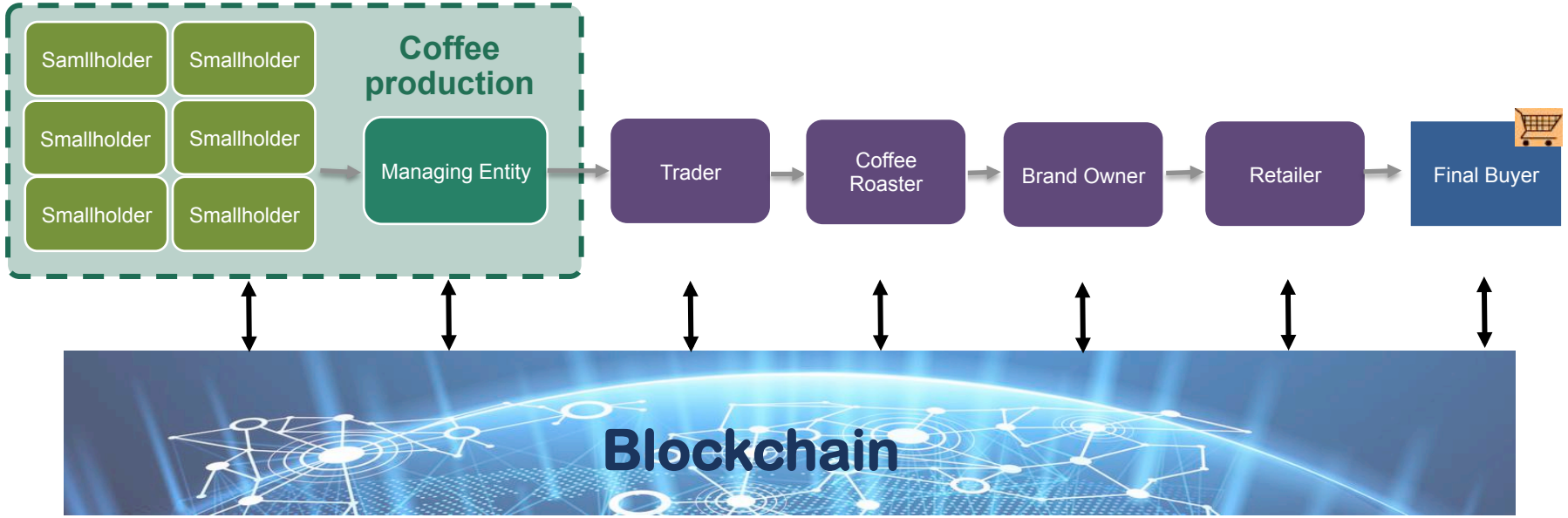
Several and not a single player ensures that the information in the database are trustworthy and not rigged



Traceability requires that sustainability information is transferred through the whole supply chain



Using a blockchain can support the reliable transfer of data, but cannot replace verification of data forwarded in the supply chain



A key question is how to verify compliance with sustainability criteria in an efficient and credible way?

What we want to achieve:

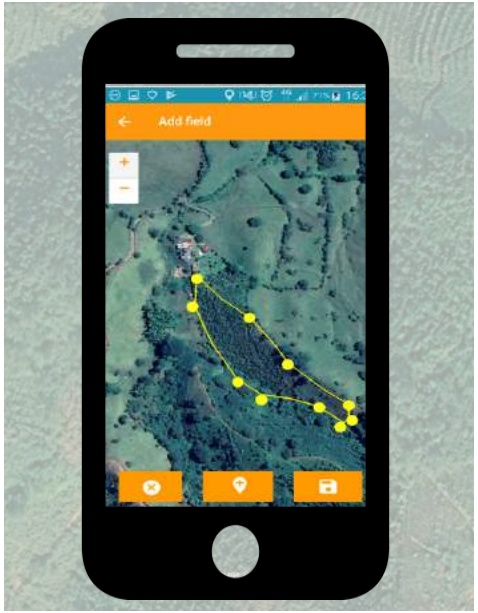
- ✓ Secure integration of smallholder production into sustainable supply chains
- ✓ Reduction of deforestation
- ✓ Improved agricultural practice
- ✓ No forced labor, no child work
- ✓ Stable living standards of farmers

Challenges

- ✓ Small individual fields and plantations
- ✓ Large numbers of farmers
- ✓ Efficient monitoring needed

Many satellites and sensors are observing the earths‘ surface in short time intervals producing images with high resolutions

4C applies innovative technologies and tools for risk assessment and verification of compliance - Examples



With the 4C Field Recorder App, exact field coordinates and plantation outlines can be tracked

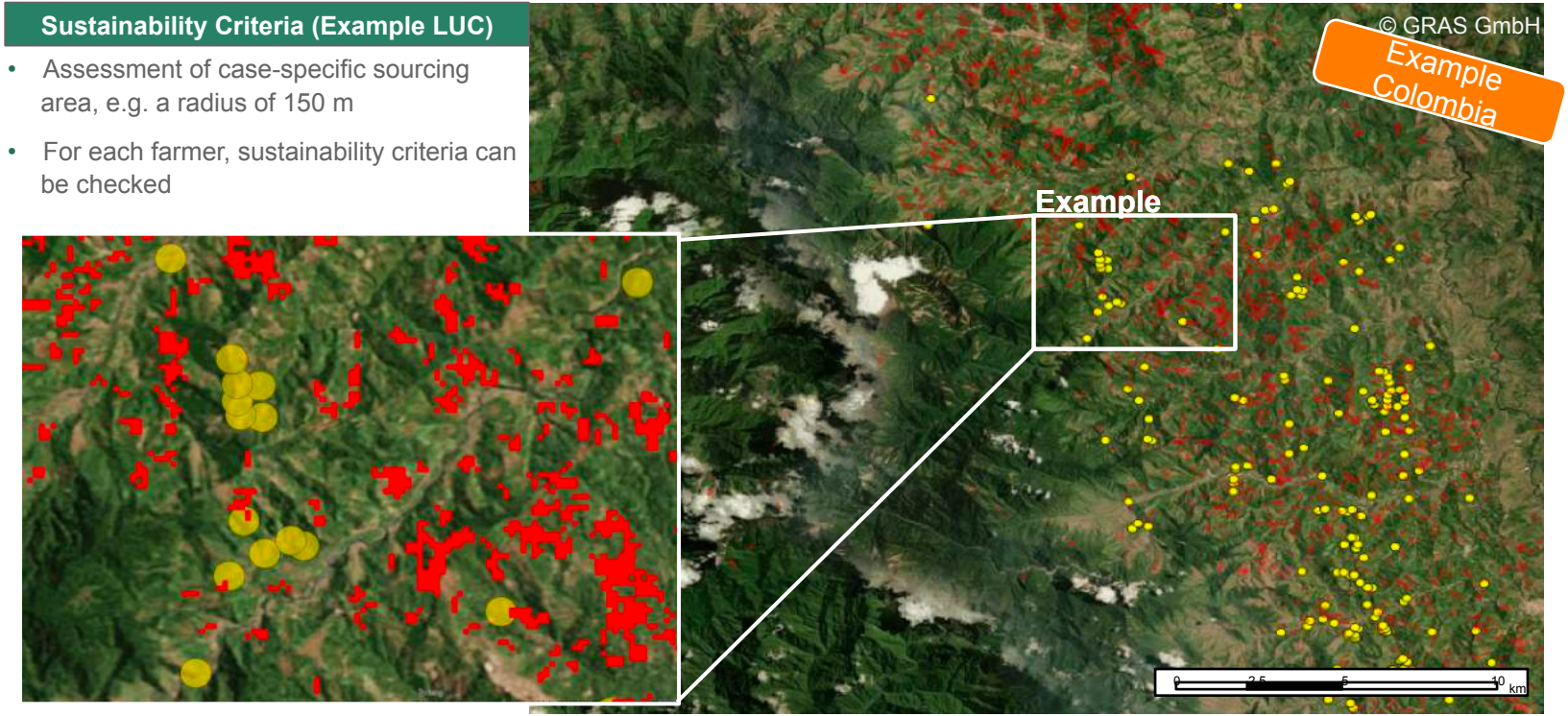
With GRAS, fast, easy and reliable automated risk assessments of 4C Units against critical sustainability criteria can be conducted

4C developed an easy-to-use tool to verify 4C unit members against the Brazilian Transparency List of Contemporary Slave Labour

Example Colombia: Efficient analysis of a large number of smallholder production areas regarding deforestation

Sustainability Criteria (Example LUC)

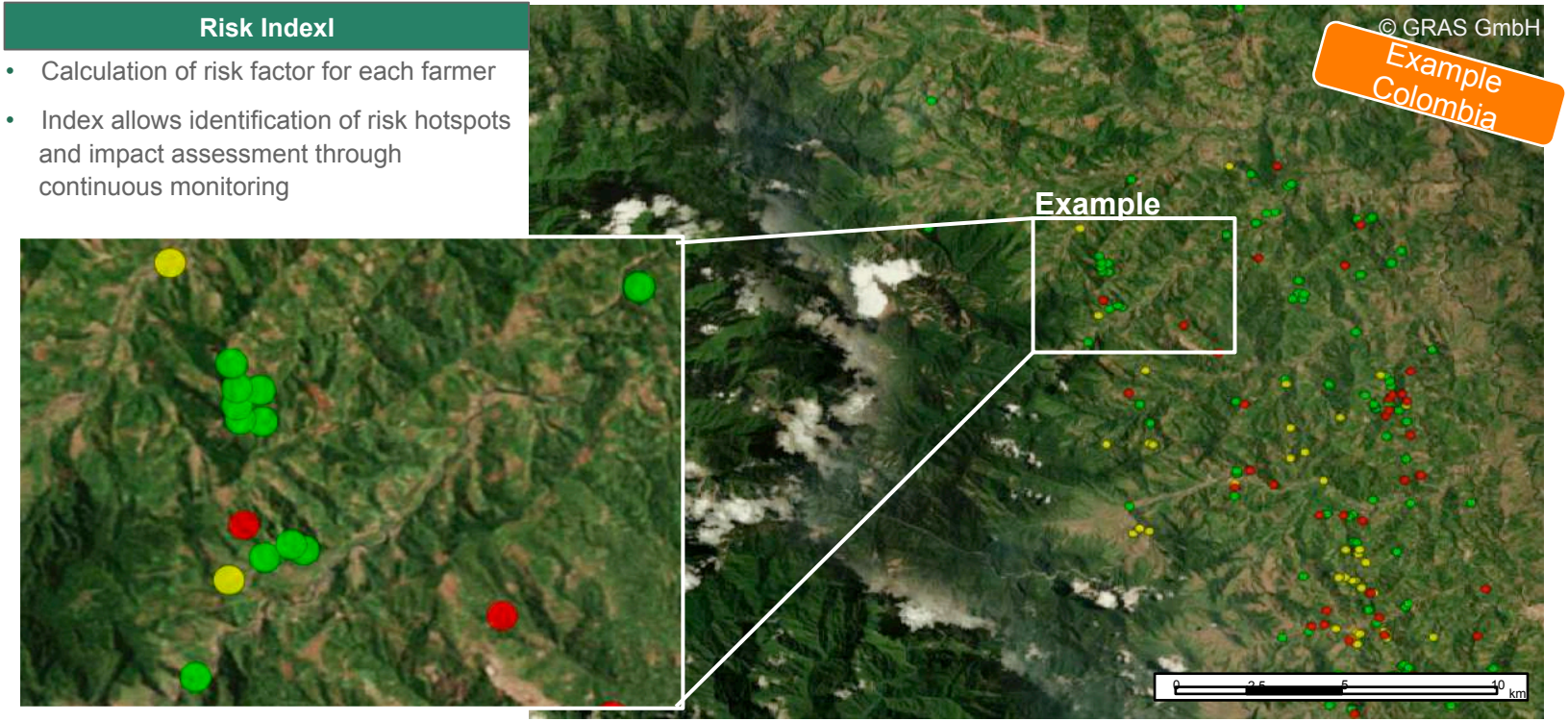
- Assessment of case-specific sourcing area, e.g. a radius of 150 m
- For each farmer, sustainability criteria can be checked



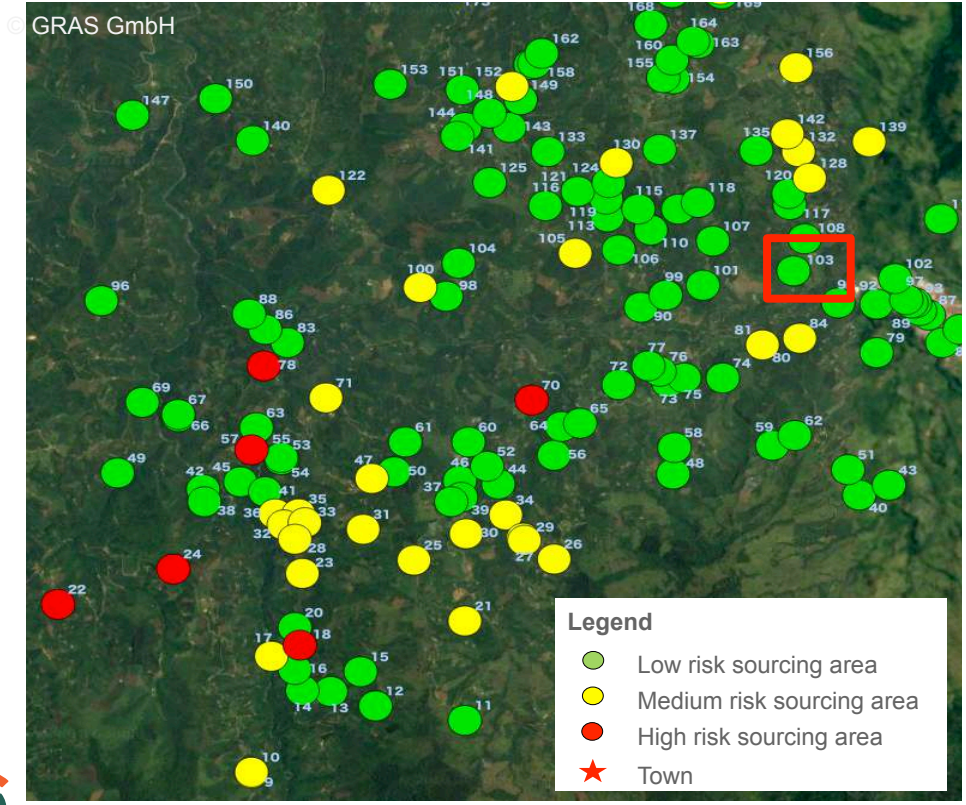
A comprehensive risk factor can be calculated for each farmer, covering a defined set of criteria (ecological, social)

Risk Indexl

- Calculation of risk factor for each farmer
- Index allows identification of risk hotspots and impact assessment through continuous monitoring



Single farmers can then ranked and analysed in detail



Farmer	Analysed area	Land Use Change	Overlap with No Go Area	Overlap with Risk Area	GRAS Risk Level
Example Farmer 108	7.2 ha	-	-	-	low
Example Farmer 221	7.2 ha	-	-	-	low
Example Farmer 12	7.2 ha	-	-	-	low
Example Farmer 103	7.2 ha	-	-	-	low
Example Farmer 53	7.2 ha	-	-	-	low
...	...	...	...	...	...
Example Farmer 5	7.2 ha	1.2 ha	-	-	medium
Example Farmer 100	7.2 ha	1.2 ha	-	-	medium
Example Farmer 122	7.2 ha	-	1.5 ha	-	medium
Example Farmer 342	7.2 ha	1.5 ha	-	-	medium
Example Farmer 296	7.2 ha	2.2 ha	-	-	medium
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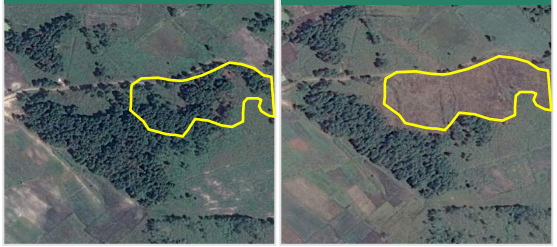
Example Farmer 78	7.2 ha	2.5 ha	-	1.7 ha	high
...	...	...	...	...	...

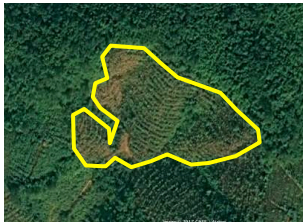
Detailed Farm Analysis



An automated analysis of field polygons can be conducted. Compliant Smallholders can be selected and trained

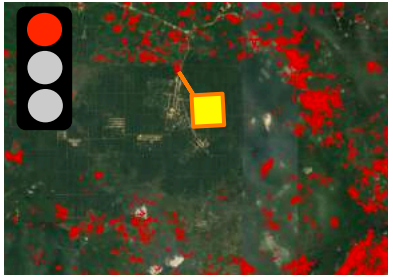
Mobile Smallholder App

Collect GPS data

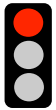


Automated check of the field polygons against deforestation and protected area within Data Management System

Not located in protected areas



Deforestation detected on farm



In case deforestation is identified on the farm and/or the farm is located within protected areas, the farm is not directly suitable for auditing

In case no deforestation is identified and the farm is located outside of protected areas, the farm is suitable for auditing

4C as cost-effective mainstream solution works towards joint solutions with positive long-term effects in the coffee sector

*"The 4C program helps us to develop the organization of our fincas and to increase the awareness regarding environmental issues. **Quality of coffee beans** has also been improved. **Fair agreements** with workers have been implemented thanks to 4C."*

Diana Florez, President,
Ubaque UbaCafé Cooperativa, Colombia

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