

Innovative technologies to support Due Diligence and Zero-Deforestation obligation



01

Introduction of GRAS

02

Analysis of social and environmental risks

03

Monitoring of deforestation-free supply chains



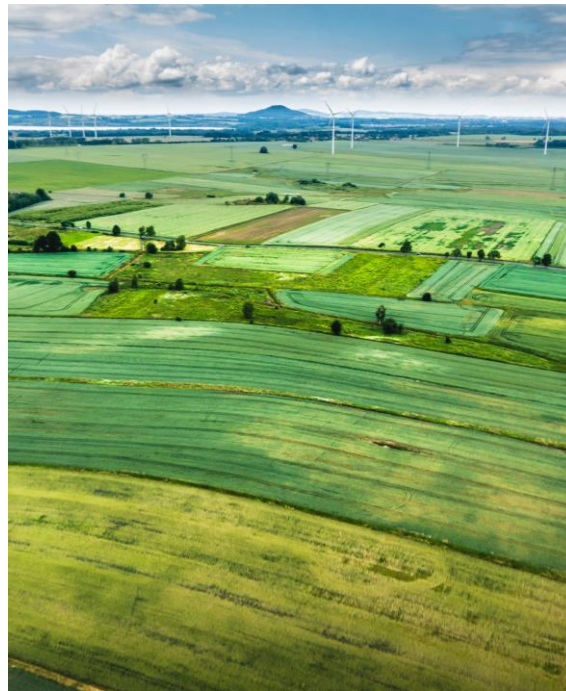
01 Introduction of GRAS

GRAS is a comprehensive solution to implement and monitor sustainable and deforestation-free supply chains and implement respective commitments by...

... **identifying** deforestation and degradation of high biodiverse areas



... **mapping** and **managing** sustainability risks in agricultural production



... **implementing** secure and efficient **monitoring** of global supply chains



... supporting credible and cost-efficient **certification** processes



GRAS is an integrated one-stop-shop solution to map sustainability information and verify compliance with relevant sustainability criteria



Biodiversity Areas



Deforestation



High Carbon Stock

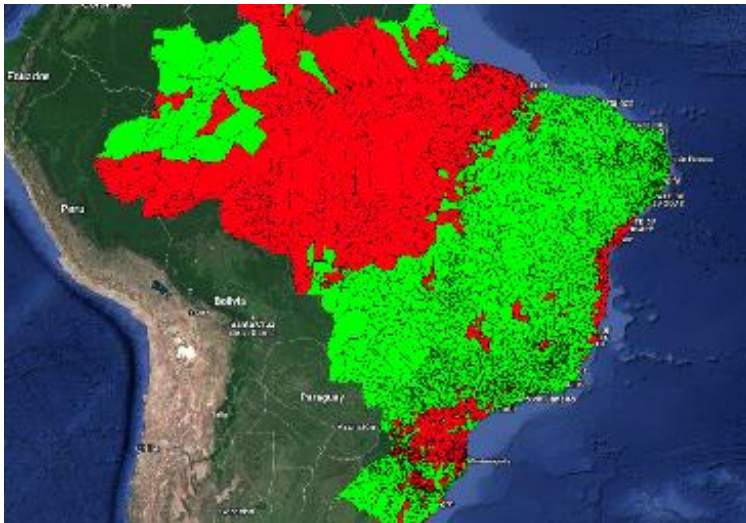


Social Indices



GRAS supports the analysis and monitoring of land use change in supply chains on different scopes, integrating the approaches into innovative tools

The risk assessment approach enables efficient identification of high-risk areas in the supply chain. Detailed analyses at field and plantation level verify compliance with deforestation criteria



Risk assessment of sourcing regions, administrative or plantation level



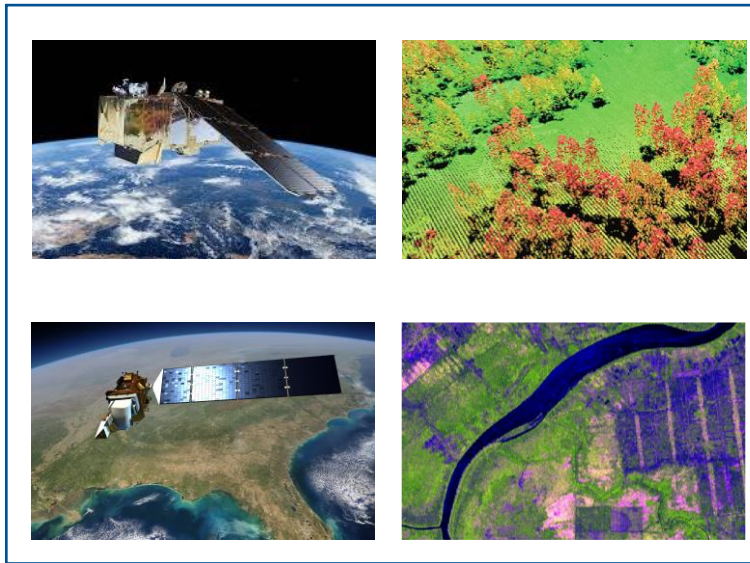
Detailed analysis of land use change



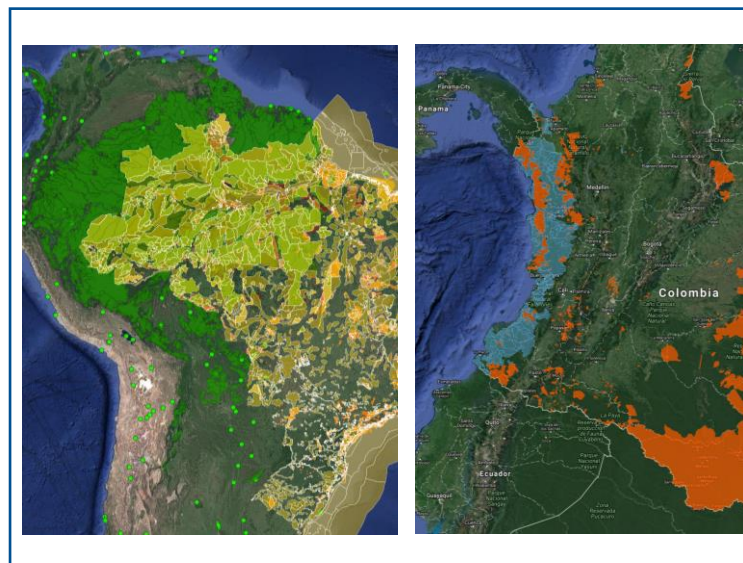
Interactive monitoring and reporting tools

The processing and analysis of remote sensing data is reliable, transparent and time and cost efficient. Methods can be transferred to different regions and crops

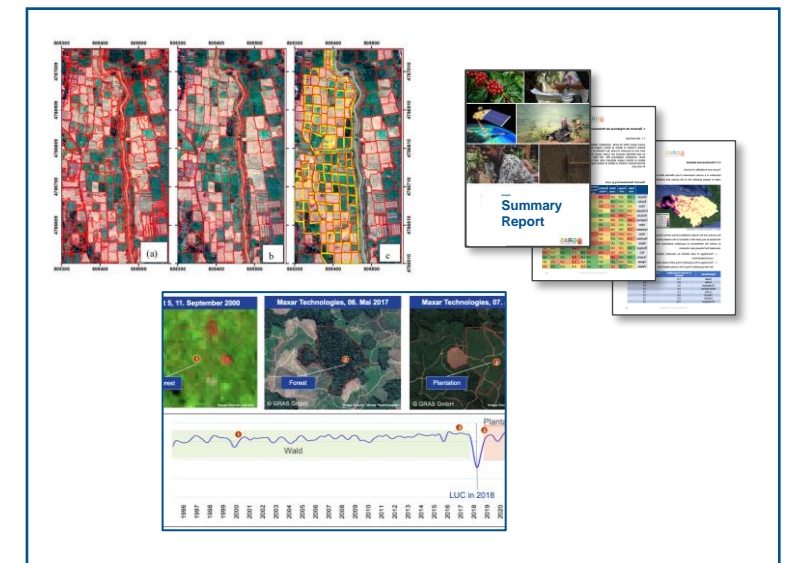
GRAS uses the advantages of digital approaches to develop efficient and innovative solutions to identify and monitor deforestation and other sustainability criteria for different time frames and regional scopes



Remote sensing data is transparent, reliable and globally available



Geo-specific and statistical data can be combined for concise risk assessments



RS analyses can be **automized** with efficient machine learning and AI methods



02 Analysis of social and environmental risks



German Act on Corporate Due Diligence in Supply Chains

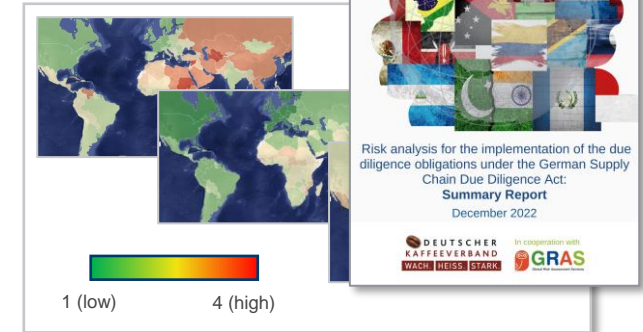
- Effective for companies with >3000 employees since January 2023 (from January 2024 also for companies with >1000 employees)

LkSG §2 (2):

- Child labour (1)
- Worst form of child labour (2)
- Forced Labour & Slavery (3 & 4)
- Work Safety (5)
- Freedom of Association (6)
- Discrimination (7)
- Adequate wage (8)
- Environmental negative impacts with effects on people (9)
- Prohibition of unlawful eviction and unlawful taking of land, forest and waters (10)
- Prohibition of hiring or use of private or public security forces (11)
- Other human rights violations (12)
- Use of chemicals banned under the Stockholm Convention ((3) 4-5)

GRAS supports German companies with a sector and country-specific risk analysis of human rights violations and manages a grievance mechanism

- Independence and confidentiality
- Information on accessibility, responsibility and implementation is publicly available
- Access for **kürzen** stakeholders and anonymity
- Protection from discrimination or punishment
- Annual check of effectiveness and on an ad hoc basis



- Identification of risks as well as prioritisation and weighting
- Disclosure of results to internal decision-makers
- Conducted annually as well as on an ad hoc basis in case the risk situation changes



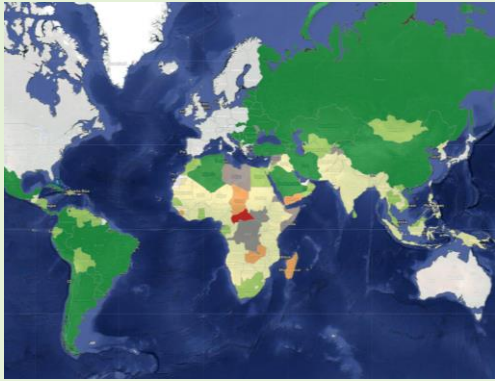
Powered by:

 **DEUTSCHER
KAFFEEVERBAND**

In co-operation with::



The risk assessment is carried out on the basis of several methodological approaches, thus utilizing the advantages of each



Indices & statistics

- National and (if available) sub-national data
- International comparability
- All LkSG criteria are covered



Literature review

- International reports on specific LkSG criteria
- Focus on legal framework and alignments with international standards



Georeferenced and subnational data

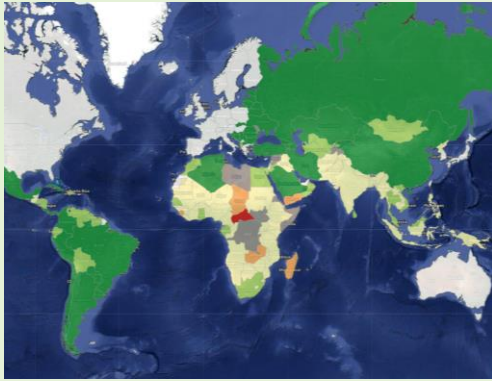
- Providing additional perspective
- 4C non-conformities
- Subnational data on single criteria



Structured internet research

- Structured research using predefined key word list
- Results depend on the amount of incidences but also governance factors

The quantitative basis of the risk assessment is the literature review and indices & statistics. The results of additional approaches are added qualitatively



Indices & statistics



Literature review

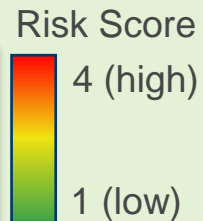
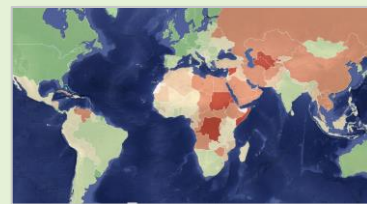


Georeferenced and subnational data

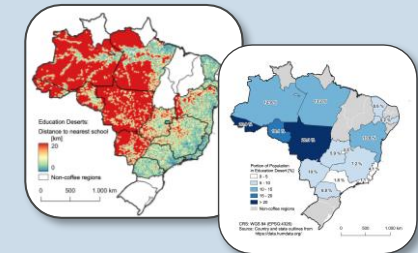


Structured internet research

Quantitative risk evaluation per criteria and country

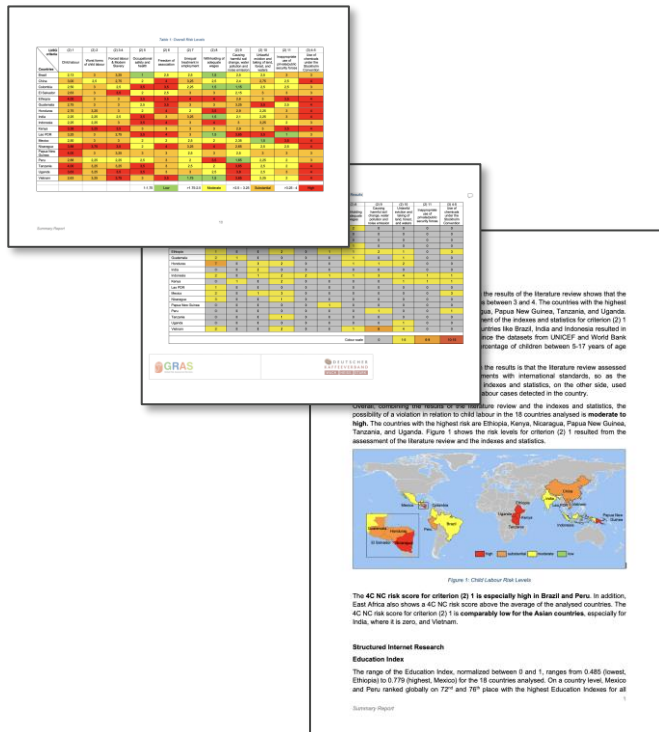


Qualitative supplement with country-specific and subnational information

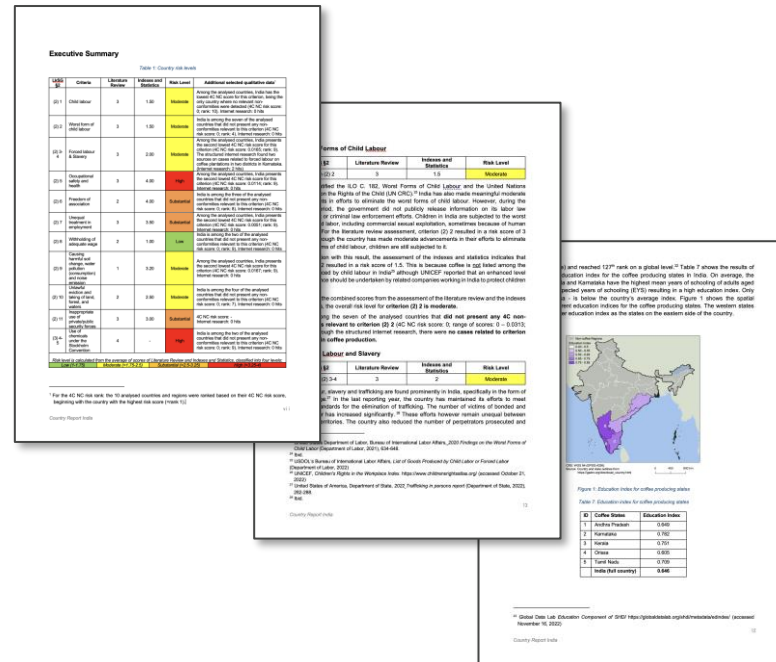


The results of the risk assessment are summarised in a single report as well as provided in a specific report for each country

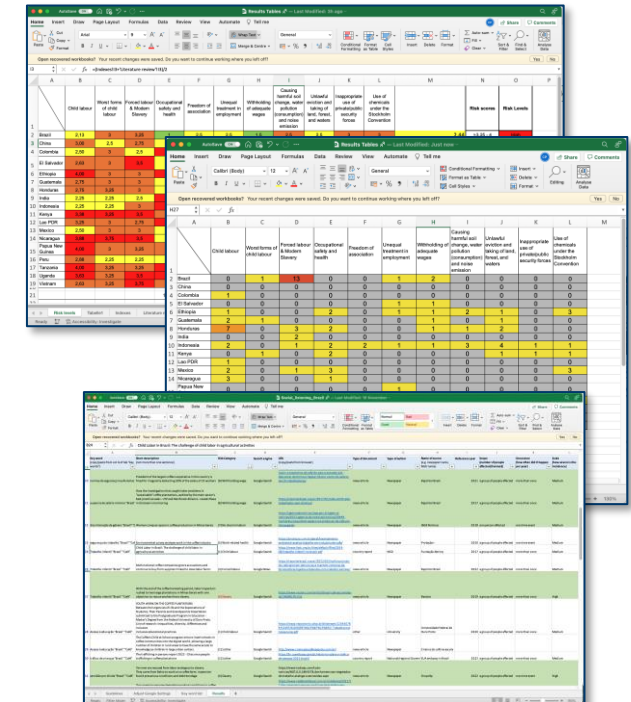
1) Overview of risk assessment



2) 18 country reports



3) Overview of results



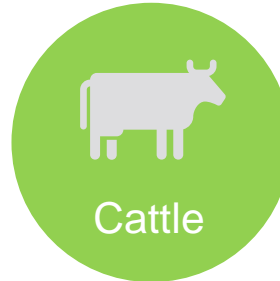


03 Monitoring of deforestation-free supply chains

Obligations described in the draft version of the EU Regulation

Proof that products are **deforestation-free** and **legal**

- Cut-off date for deforestation: December 31, 2020
- In accordance with all relevant legislation in force in the producing country




**Collection of farmer information
and field outlines**

**Conduct deforestation analysis
and risk assessment**

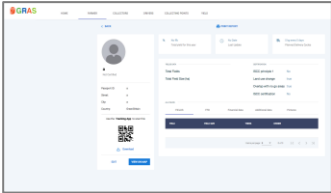


**Passing on the information
through the supply chain**

GRAS and 4C provide tools to collect and analyse relevant data for specific plantation areas, e.g. collecting geo-coordinates, analysis of deforestation

Collecting information



Global Risk Assessment Services
Faramo



- Geo-coordinates & plantation outlines
- Name
- Structure and management of the plantation
- Photos of legal documents
- Train the trainer approach

FARAMO - Management, analysis and visualization of plantation outlines and production data



4C certification includes the collection of geo-coordinates of farmers

Identifying deforestation

Examples

Sentinel 2 (ESA, Copernicus):

- 10x10m spatial resolution
- Launch Sentinel-2A: 2015
- Images available every 5 days

Landsat (NASA):

- 30x30m spatial resolution
- Launch Landsat 4/5: 1982/84
- Landsat 8/9 available every 8 days

GRAS uses remote sensing technology to detect land use change and deforestation



Sentinel-2



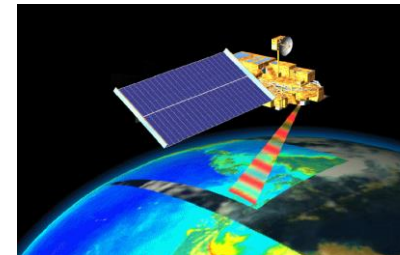
SPOT



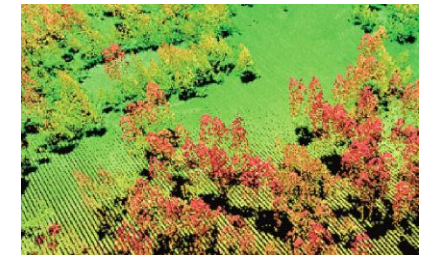
PALSAR



Landsat

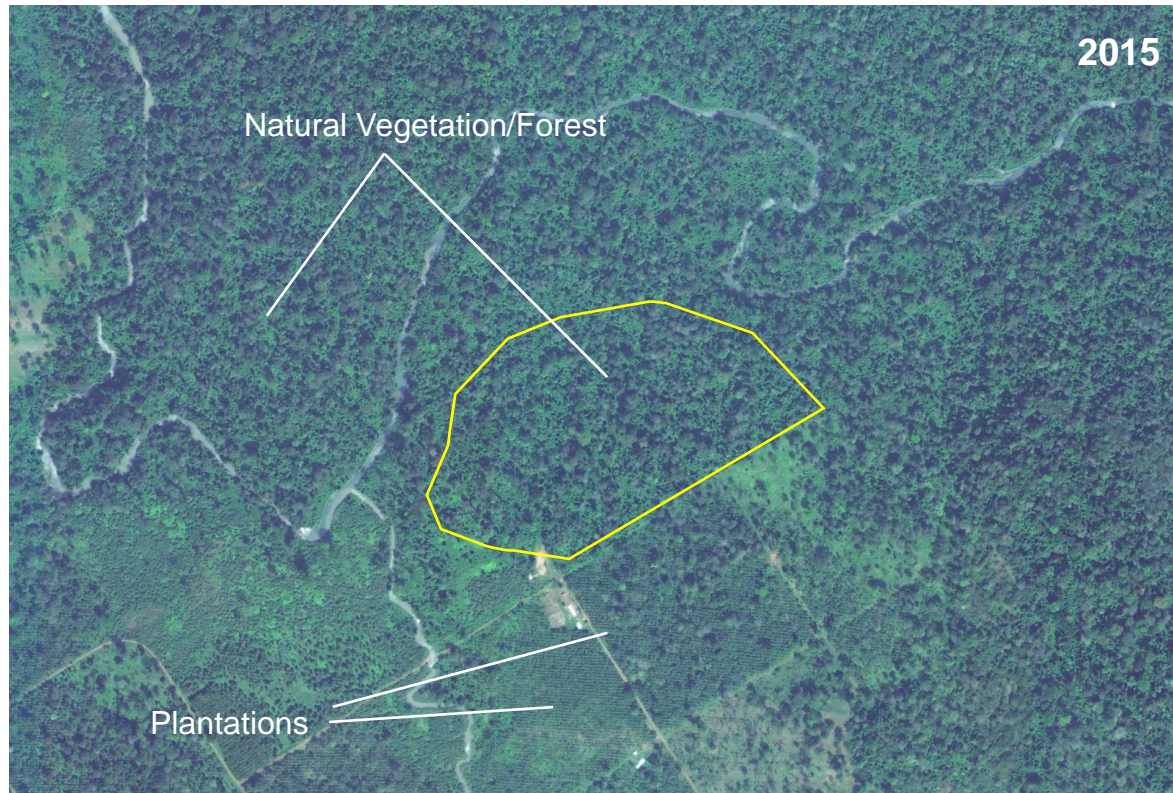


MODIS



LiDAR

GRAS uses high resolution satellite images and additional datasets on forest density and height to identify and verify the conversion of forest to plantations



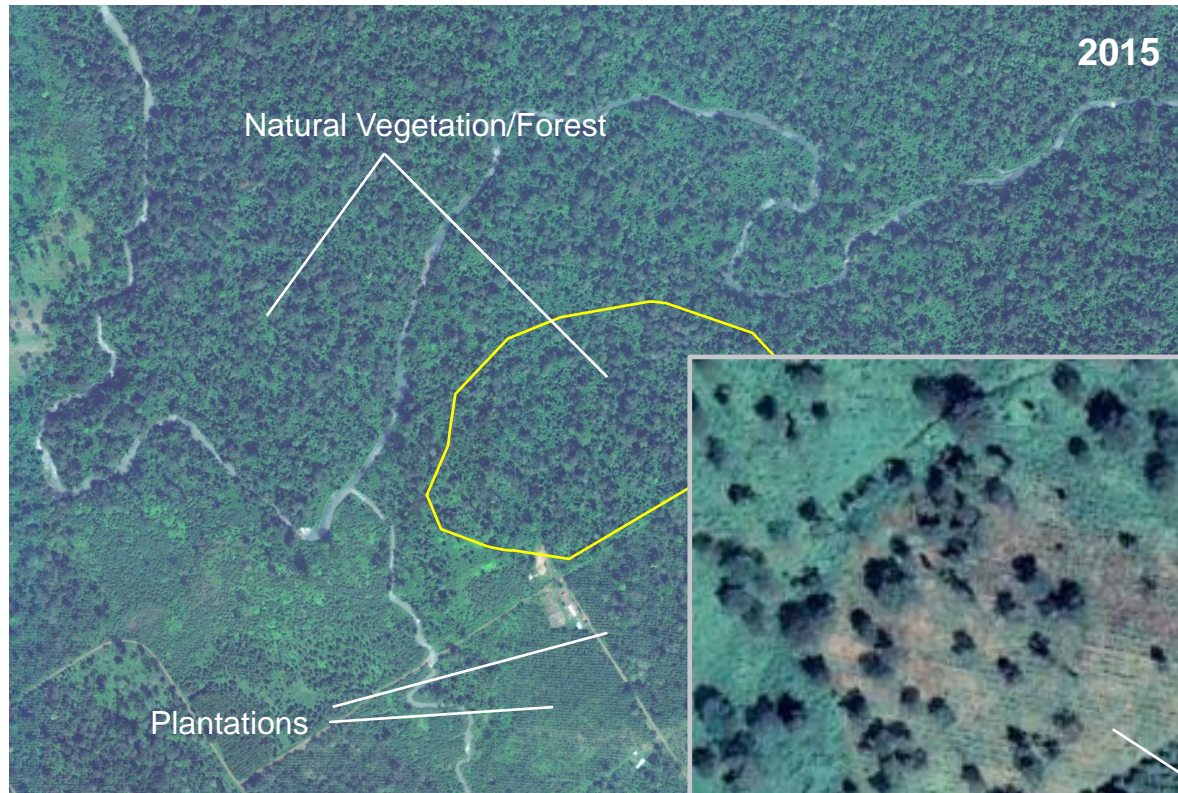
Source: Maxar Technologies



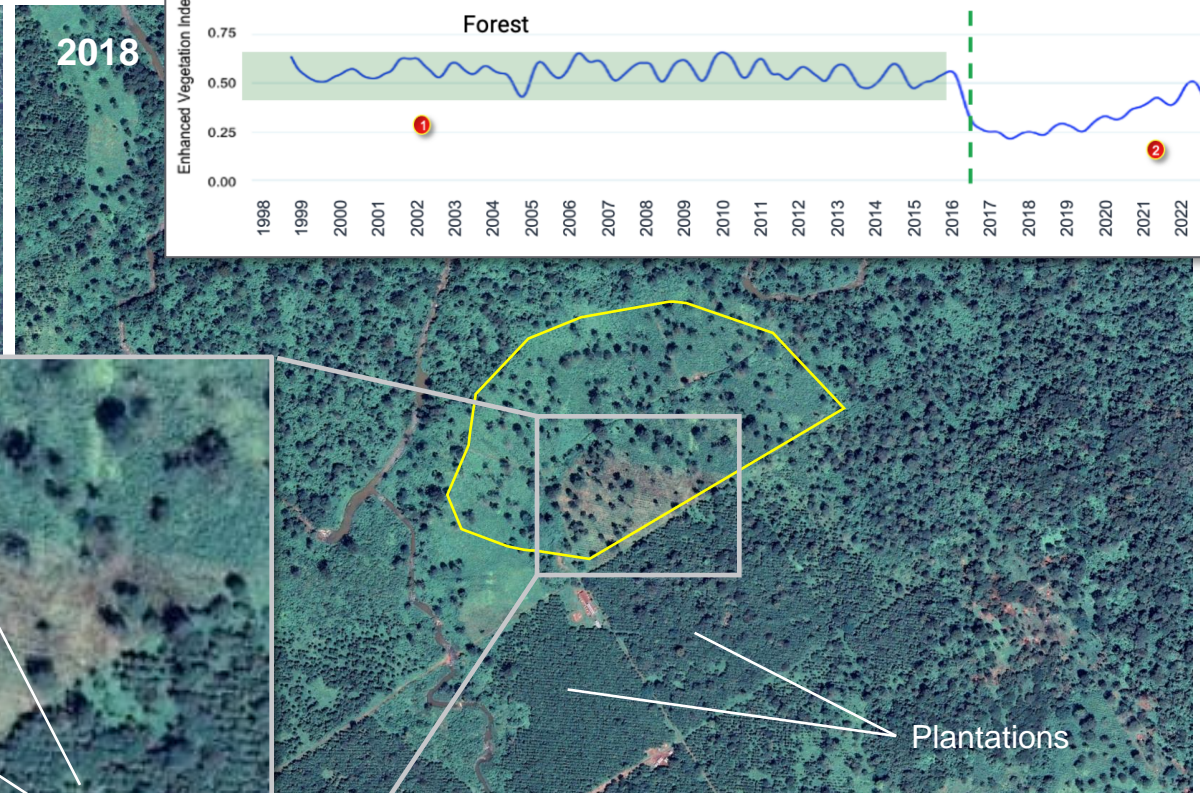
Source: CNES / Airbus

Example

EVI time series support the identification of the point of time of land use change activities and the verification of compliance with deforestation criteria

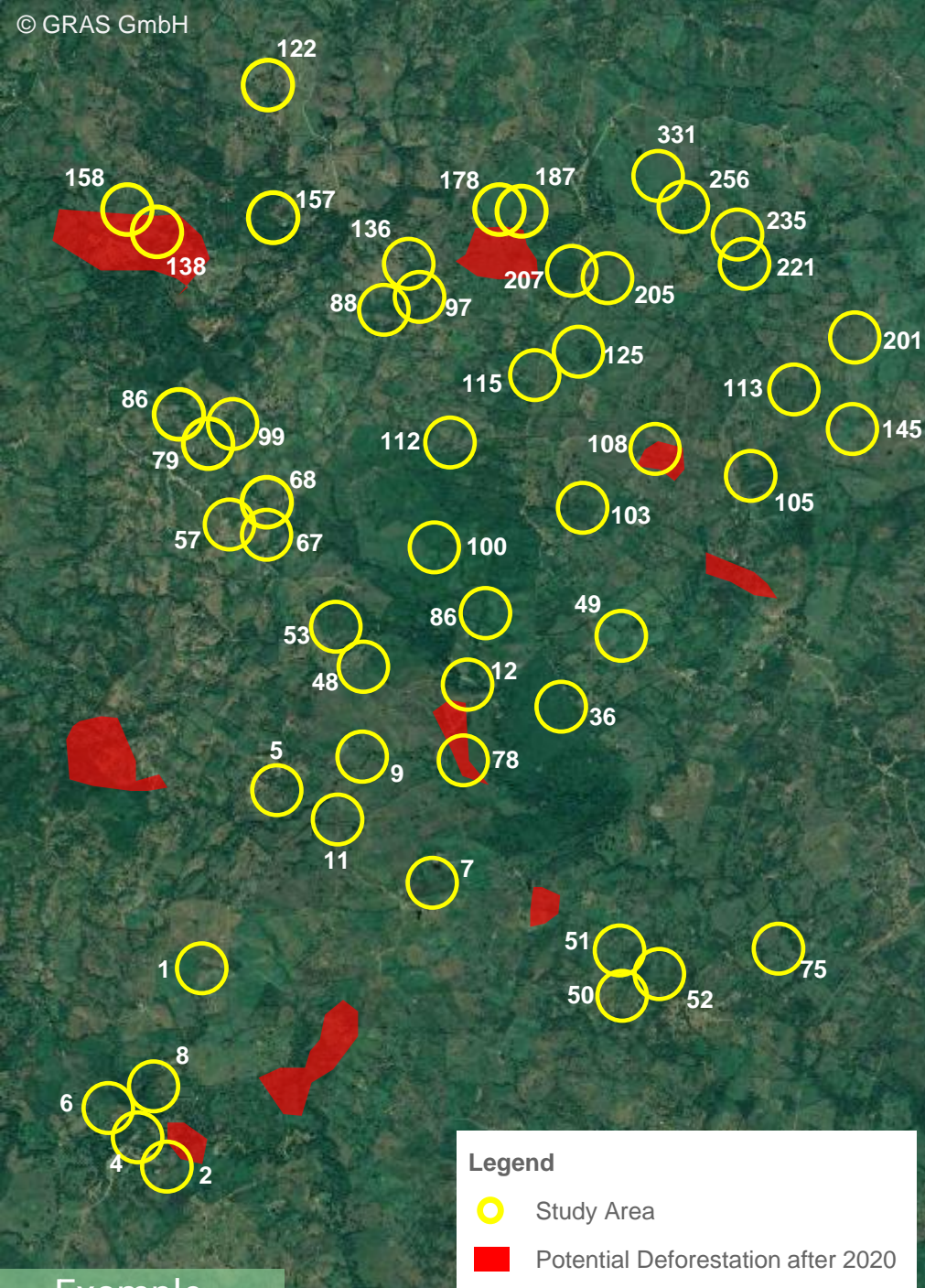


Source: Maxar Technologies



Source: CNES / Airbus

Example



Example

For the close surrounding of each farmer coordinate or plantation outline, a risk score can be calculated

A risk is determined using transparent and official data sets

Geo-spezifische Daten

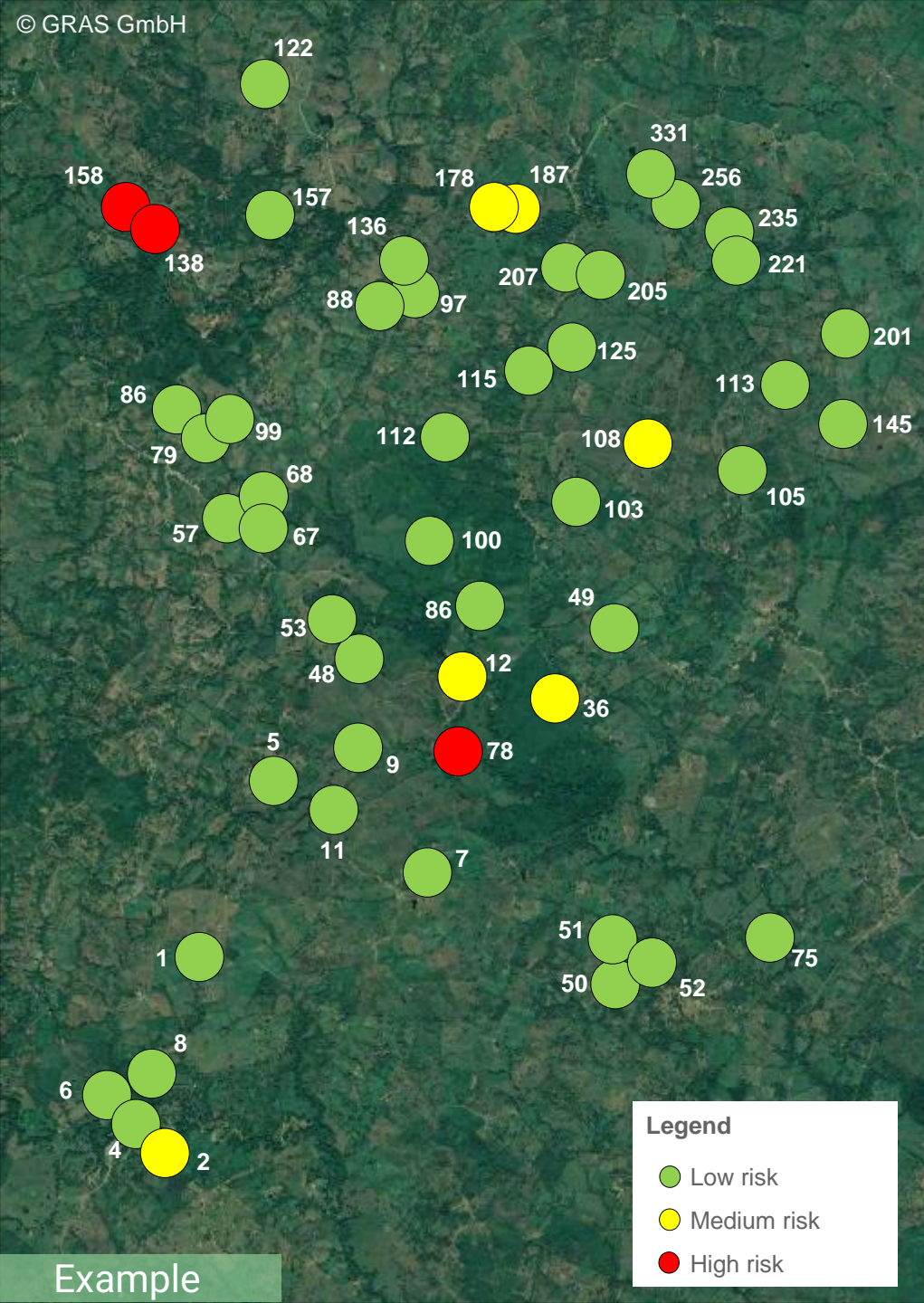
- Forest
- Deforestation
- Protected Areas
- Expansion of agricultural areas
- Designated indigenous areas
- Third party complaints
- Among others



Statistische Daten und Reports

- Social risks
- Human rights
- Governance indicators
- Economic indicators
- Corruption levels
- Sanctions
- Conflicts
- Among others





For the close surrounding of each farmer coordinate or plantation outline, a risk score can be calculated

A risk is determined using transparent and official data sets

Geo-spezifische Daten

- Forest
- Deforestation
- Protected Areas
- Expansion of agricultural areas
- Designated indigenous areas
- Third party complaints
- Among others

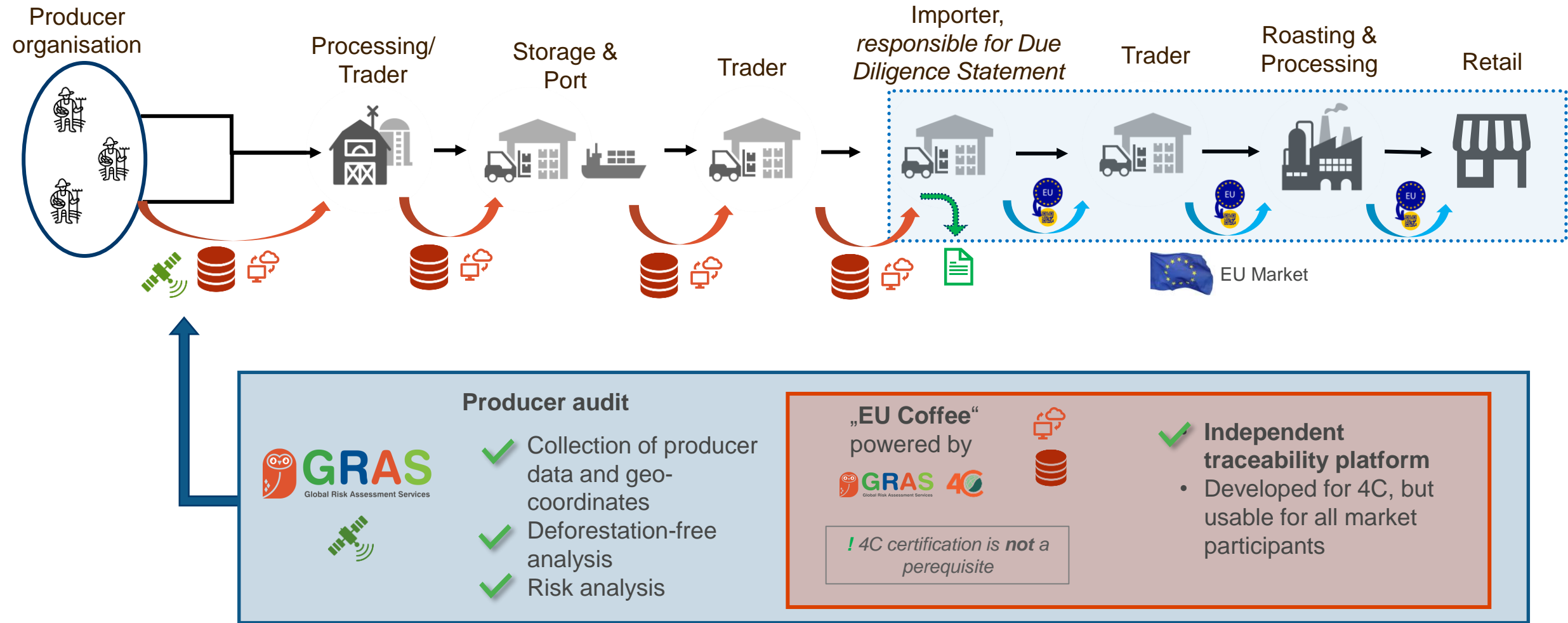


Statistische Daten und Reports

- Social risks
- Human rights
- Governance indicators
- Economic indicators
- Corruption levels
- Sanctions
- Conflicts
- Among others



With the integrated database solution, traceability to the producers can be established and deforestation criteria checked



Summary

GRAS for due diligence and no-deforestation:



Country- and sector specific analysis of human rights risks



Analysis of deforestation-free supply chains and traceability to producers



Tools to collect producer data and geo-coordinates and conduct automated analyses and reporting



Thank you very much!