Certification Support with Global Risk Assessment Services (GRAS)

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How does GRAS work?

Case Study: Oil Palm Plantations

Case Study: Coffee Farmers in Colombia

Case Study: Soy Farmers in Brazil
How does GRAS work?
A reliable and efficient monitoring of sustainability requirements is crucial for all stakeholders along the supply chain and beyond.

- Farmers / Farmer Groups
- Agricultural Traders
- Brand Owners / Retailers
- Private / Public Investors
- Auditors
- Governments and NGOs
GRAS is a comprehensive solution to implement and monitor deforestation-free supply chains 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 verify and monitor compliance with the most relevant sustainability criteria.

- Biodiversity Areas
- High Carbon Stock
- Deforestation
- Social Indices
GRAS uses latest remote sensing technology to identify land use change, deforestation and degradation of land cover.

- Sentinel-2
- SPOT
- PALSAR
- Landsat
- MODIS
- LiDAR
GRAS develops methodologies to estimate above ground biomass and carbon stock of forests with LiDAR (Light Detection and Ranging) (I)

LiDAR sensors can be placed on drones and satellites to scan the earth surface

Landscape Modelling  
Forest Carbon Estimation  
Single Tree Analysis
GRAS develops methodologies to estimate above ground biomass and carbon stock of forests with LiDAR (Light Detection and Ranging) (II)
Support of effective certification

Needs

- Efficient preparation for audit
- Support LUC assessments (e.g. ISCC or RSPO)
- Know high risk areas
- Determination of sample size based on risk assessment?

Solutions

- Provide detailed information on land use change and HCV areas
- Objective risk assessment
GRAS analyses sustainability risks globally on different levels, depending on your strategy and goal.

Administrative level & cluster analysis

Sourcing areas with a specific radius

Detailed field analysis

Examples
02 Case Study: Oil Palm Plantations
Case Study: Palm Plantations

Analysis of plantation with a defined production area

Needs

- Are plantations deforestation-free? When was replanting? What is happening in the surrounding of my plantations?
- Is the plantation located in HCV areas?
- Is the plantation suitable for certification?

Solutions

- Detailed land use change assessment over time for each plantation
- Check if plantation overlaps with HCV areas
On plantation level GRAS conducts detailed assessments to identify date and type of LUC, using EVI time series and high resolution satellite images.
Satellite images help to identify replanting activities of palm plantations, which are not considered as incompliant.

Replanting in 2013
GRAS can support the identification of low iLUC biofuels, e.g. the cultivation of crops on areas which were previously not used for cultivation (Unused land)

Certification issues

- ISCC is able to proof the history of land use with remote sensing technology (land cover and utilization assessments, image interpretation, EVI time series approach, digital geo-portals, cadastre systems; on site assessments)
- Approach covers annual and perennial crops
- For new cultivation areas, compliance with sustainability criteria for biofuels is done within the regular audits
- Criteria need to be set by the EC for determining unused land
Case Study: Coffee Farmers in Colombia
Case Study: Coffee Farmers in Colombia

A large number of production areas are analyzed efficiently and a risk ranking can be derived.

Scenario

- Analysis of the supply base against predefined sustainability criteria (e.g. Land Use Change after a certain cut-off-date) to proof your partners and customers that you fulfil your commitments.

  OR

- Preparation of a sustainability certification audit and check compliance of farmers with the needed criteria.

  OR

- Evaluation of potential investments against sustainability criteria and exclusion of non-compliant spots.
Case Study: Coffee Farmers in Colombia

A fixed radius for an assumed sourcing area per farmer can be applied and compared to land use change heat maps.

Land Use Change

- A case-specific sourcing area is applied, e.g. a radius of 150 m.
- For each farmer, case-specific sustainability criteria will be checked for the assumed sourcing area, e.g. LUC, biodiversity, indigenous areas and others.
Case Study: Coffee Farmers in Colombia

Available local and national datasets on biodiversity and protected areas are used to check the overlap with the assessment areas.

Overlap with Protected Areas

- Datasets on protected areas and areas with high biodiversity or high carbon stock (e.g. peatland) to check for overlaps.
- Protected areas are usually classified into areas with very strict protection rules and areas, where agricultural production is allowed under certain restrictions.
Case Study: Coffee Farmers in Colombia

The comprehensive GRAS Index can be calculated for each farmer, covering a defined set of sustainability criteria.

GRAS Index and Ranking (1/2)

- GRAS calculates the comprehensive GRAS Index for each farmer
- The transparent GRAS Index allows for ranking, identification of risk hotspots and impact assessment through continuous monitoring
- Individual reports per farmer can be produced if needed
Case Study: Coffee Farmers in Colombia

Depending on the aim of the analysis, a detailed assessment of selected plantations can be conducted (e.g. those in high risk areas)

GRAS Index and Ranking (2/2)
Case Study: Coffee Farmers in Colombia

High resolution satellite imagery and the EVI time series verify the conversion from forest to plantation

Detailed field analysis
Case Study: Soy Farmers in Brazil
For an assessment in Brazil, GRAS has used multiple databases methods to identify land use change and violations against legal requirements.

**Protected areas**
- Data from the Ministerio de Meio Ambiente
- PROBIO
- Ramsar Sites
- Intact Forest Landscapes
- Classification based on IUCN categories (e.g. National Parks)

**Deforestation & grassland/shrub conversion**
- Use of different kind of satellite data (Landsat, MODIS, Sentinel, ASTER, etc.)
- Processing of satellite images
- Verification of results in a multi-step approach

**Environmental & social data**
- FUNAI (Fundação Nacional do Índio) – Ministério da Justiça
- INCRA (Instituto Nacional de Colonização e Reforma Agrária) – Ministério do Desenvolvimento Agrário
- Transparency list on contemporary slave labour and IBAMA embargo list

**Legal requirements**
- Data based on CAR
- Areas of Permanent Preservation (APP)
- Legal Reserves (LR)
EVI time series and high-resolution imagery have been used to verify the Land Use Change (deforestation and the conversion of other natural vegetation)

ASTER, 2006

Sentinel-2, 2017

LUC in 2008

Natural vegetation

Fallow land

Annual crop
GRAS has cleaned, updated and improved available deforestation maps by own methods to provide detailed Land Use Change maps

- A detailed Land Use Change analysis by GRAS delivers more precise results than publically available datasets (e.g. GFC, PRODES)
- GRAS differentiates between conversion of managed grassland (e.g. pasture) and unmanaged grassland/shrub (e.g. Cerrado)
GRAS can produce a concise report for each farmer. Every report starts with an overview and main findings of the GRAS analysis.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Summary</th>
<th>Area / Share</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic data</strong></td>
<td></td>
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<tr>
<td>Biome</td>
<td>Cerrado</td>
<td></td>
<td></td>
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<tr>
<td>Area</td>
<td>1698 ha</td>
<td></td>
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<tr>
<td>Cropland Area 2008</td>
<td>1288 ha (Main crop: Soybeans)</td>
<td></td>
<td></td>
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<tr>
<td>Cropland Area 2017</td>
<td>1566 ha (Main crop: Soybeans)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Land Use Change</strong></td>
<td>Deforestation and other conversion of natural vegetation</td>
<td>2008 - 2017</td>
<td>Deforestation or conversion of natural vegetation identified within the farm area</td>
</tr>
<tr>
<td><strong>Legal Compliance</strong></td>
<td>Legal Reserves</td>
<td></td>
<td>47% of the area designated as Legal Reserve (Farm registered in CAR)</td>
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<td></td>
<td>Areas of Permanent Preservation (APP)</td>
<td></td>
<td>2% of the area designated as APP</td>
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<tr>
<td></td>
<td>Indigenous Areas</td>
<td></td>
<td>No overlap with indigenous areas</td>
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<tr>
<td></td>
<td>Protected Areas (HCV)</td>
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<td>No overlap with protected areas</td>
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<td>Embargo List</td>
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<td>Not on the list</td>
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<td>Slavery List</td>
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<td>Not on the list</td>
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</table>
GRAS supports sustainability certification processes on different levels

- Preparation of Audit Process
  - Identification of risk hot spots
  - Exclusion of incompliant farmers

- Preparation of On-Site Audit
  - Evaluation of risk level
  - Indication for sample size

- Monitoring of the Supply Base
  - Ongoing verification of compliance
  - Improvement and impact assessment
With GRAS certification becomes…

… more digital

… more transparent

… more effective

… less costly
Many thanks for your attention!

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