Application of Latest Remote Sensing Technology for EUTR Law Enforcement

Mohammad Abdel-Razek, Dr. Peter Hawighorst
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Initiated by an article in an influential magazine, there is an ongoing discussion on the German implementation of the EUTR.

- German magazine “DER SPIEGEL” published a report on illegal timber / EUTR – “On the wrong site”. The article is:
  - critical with German implementation of the EUTR
  - gets NGOs a word charging the competent authority to be “passive” fighting against illegal timber
  - deeming the competent authority to support operators in their business rather than fighting illegal timber

Can innovative technology support operators and competent authorities fighting illegal timber?
Against this background, GRAS has been developed....
GRAS is an independent and comprehensive web-tool offering a one-stop-shop solution providing geo-referenced sustainability information.

**GRAS Services**

- **Mapping** of:
  - Supply chains (e.g. wood, palm oil or soy)
  - Biodiversity and protection areas
  - Carbon stocks (e.g. peatlands)
  - Harvesting/ Land Use Change (LUC)
  - Social indices
- **Calculation of** sustainability risk factors and sustainability **rankings**
- **Monitoring of** sourcing areas
- **Certification support**
- **Provision of** sustainability **assessment reports**
- **Customized solutions** (e.g. supply chain mapping)

The GRAS Tool currently covers 35 countries. More countries are offline available.
GRAS is an interactive and easy-to-use online tool providing many different layers to show sustainability information.
## Content

1. What is the GRAS tool?

2. How can GRAS support EUTR law enforcement?
   - 2.1 Verification of Wood Origin
   - 2.2 Risk Assessments and Verification of Harvesting Areas or Regions of Interest

3. Conclusions
The EU regulation requires risk assessment procedures as part of a due diligence system to evaluate the risk of illegally harvested timber or timber products.

Therefore the following aspects are relevant:

- Frequency of illegal logging in a country/region
- Corruption
- Frequency of armed conflicts
- International sanctions by the UN related to wood exports, etc.
- Complexity of supply chain
- Recognized certification systems or verification through third parties

Minimizing the risk / consequences of verification

> Additional information required or rather wood can not be imported

The main aim is to address the problem of illegal logging of timber
GRAS is an efficient tool to conduct risk assessments according to the EU Regulation 995/2010

How can be ensured that no illegal logging took place?

GRAS helps to conduct efficient and reliable risk assessments on concession level according to the requirements of the EU Regulation 995/2010:

- Verify the proof of wood origin
- Identify cut-off dates
- Identify protected areas within the sourcing region
- Display e.g. High Conservation Value Forest
- Trace back supply chains to supplier
- Show information about illegal logging
- Display information about conversion in the sourcing region
- Provide information about potential corruption in the sourcing region
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GRAS can adjust its „GRAS Social Factor“ methodology with additional data sources focusing on relevant risk assessment criteria for EUTR.
The innovative GRAS Index compiles all relevant sustainability criteria into an overall factor.

<table>
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<th>Factor</th>
<th>Value</th>
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<tr>
<td>Biodiversity</td>
<td>0.21</td>
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<tr>
<td>Illegal Logging</td>
<td>0.38</td>
</tr>
<tr>
<td>LUC</td>
<td>0.05</td>
</tr>
<tr>
<td>Social</td>
<td>0.43</td>
</tr>
<tr>
<td>Indigenous</td>
<td>0.11</td>
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<tr>
<td>Sust. Forestry</td>
<td>0.18</td>
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**GRAS Index** 0.23

**Risk Levels**
- **Low Risk**  
  GRAS Index: < 0.2
- **Medium Risk**  
  GRAS Index: 0.2 to 0.4
- **High Risk**  
  GRAS Index: > 0.4
GRAS uses a multi-step approach to conduct sustainability risk assessments

Conducted steps

1. Risk assessment of sourcing areas
   According to:
   • Illegal logging
   • Biodiversity
   • Carbon stock

2. Calculate risk factor of assessed sourcing areas
   Calculation of risk factor for sourcing areas based on a defined radius
   Coordinates of sourcing area known

3. Calculate risk factor of FMU
   Calculation of risk factor for FMU within sourcing areas with a high risk
   Addresses of FMU known

4. Detailed analysis
   For FMU with high risk a detailed verification of Land Use Change based on Landsat EVI possible
   FMU boundaries needed

Risk assessment  
"FMU = Forest Management Unit"
GRAS risk assessment is also applied to any administrative unit, e.g. Municipality level in Mato Grosso, Brazil
GRAS can identify harvesting activities by using remote sensing technologies and...

Example: Wood harvesting Finland

- Jun. 2009: Forest
- May 2011: Bare soil
- Sept. 2015: Agriculture, Replanting?
...EVI analysis. The information can be used verifying proofs of wood origin documentation

- The Enhanced Vegetation Index (EVI) is based on MODIS and Landsat data and can be used for the verification of land management actions.
- Changes in the EVI timeline show when land management actions took place.
- Currently, more than 70 countries are included.
- In addition, improved Landsat pictures are used to verify land management actions (e.g. land use change from forest to agricultural land).

- Verification of proofs of wood origin

Harvesting of wood end of 2012/ early 2013
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An example is given here for a forest management unit in Sumatra, Indonesia.
The FMU does not lie within a protected area or carbon rich soil
GRAS has mapped the recent logging activities within the FMU.
EVI also shows recent logging in 2016 in the south east of the site.

Logging activities have been taking place at least starting from 2007.
Satellite imagery confirmed the establishment of the FMU starting from 2006-2007.
High resolution Radar data (SAR) can also help unrevealing the history of the FMU. The whole FMU area is managed since 2009.
Was the area primary forest before the establishment of the FMU?

**Tree Height in the year 2000 (m)**
- <5m
- 5—10m
- >10m

**Tree Cover in the year 2000 (%)**
- 10%
- 60%
Already today, GRAS is producing Risk Assessment Report for certain regions/areas documenting the calculated risk in a transparent way.

Steps for automated GRAS analysis:

1. Open a new case within the online tool
2. Polygons can be uploaded
3. Sourcing radius can be defined
4. GRAS Sustainability Index will be created automatically for the defined sourcing region
5. Automated GRAS report can be created

Option: Automated analysis of sourcing areas or regions based on EUTR relevant risk factors
Content

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Conclusions

• GRAS can be used for the verification of proofs of wood origin checking information on wood harvesting in a certain area

• GRAS includes geo-referenced information on protected areas (e.g. biodiverse areas, indigenous areas) and social criteria. The mapped information can be used verifying illegal harvesting of wood

• GRAS allows individual analysis for areas of interest (e.g. polygon upload possible)

• GRAS can further develop an easy-to-use online tool specifically adapted to conduct risk assessments in the forest sector according to EUTR relevant information
  
  • Build up a system to monitor volumes of wood taken logged per forest area or municipality and compare it to the legally permitted volumes

  • Build up a customized tool to control and manage own forest areas and suppliers with respect to sustainability risks and set up a reporting
Thank you!

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