Improving the ISCC certification process with GRAS: Latest developments and outlook

Mohammad Abdel-Razek

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Currently, there is no harmonised method for the ISCC system users to verify Land Use Change (LUC), leading to involvement and support from ISCC staff

A system user indicated in the ISCC Checklist, Procedure that Land Use Change (LUC) has occurred

00.07.06	Did land use change take place after January 2008? If LUC after 2008 took place, please provide a detailed explanation specifying how compliance with ISCC was verified (evidence should include e.g. remote-sensing technology, pictures of the on-site visit, approach to determine land category, further tools etc.)	☒ yes, If yes, please specify the type of land use change: ☐ no Please note that the statement should be provided in separate document

- In case LUC occurred, an ISCC LUC Template needs to be filled out which often lacks crucial information and leads to a lengthy reviewal process and/or communication chain between system users, CBs and ISCC

A reliable LUC assessment and reporting requires multidisciplinary expertise

Examples expertise are: remote sensing, GIS, ecology, sustainability

Remote sensing expertise	Mapping smallholder plantation/mixed gardens	Mapping land category (e.g. other land use, sparase forest)
GIS expertise	Creating a report with GIS data (e.g. shapefile, KMLs)	Accuracy and reliablity of available map
Ecology/sustainability	Non-biodiverse grassland/shrubland	GHG calculations (e_{sca} and e_l)

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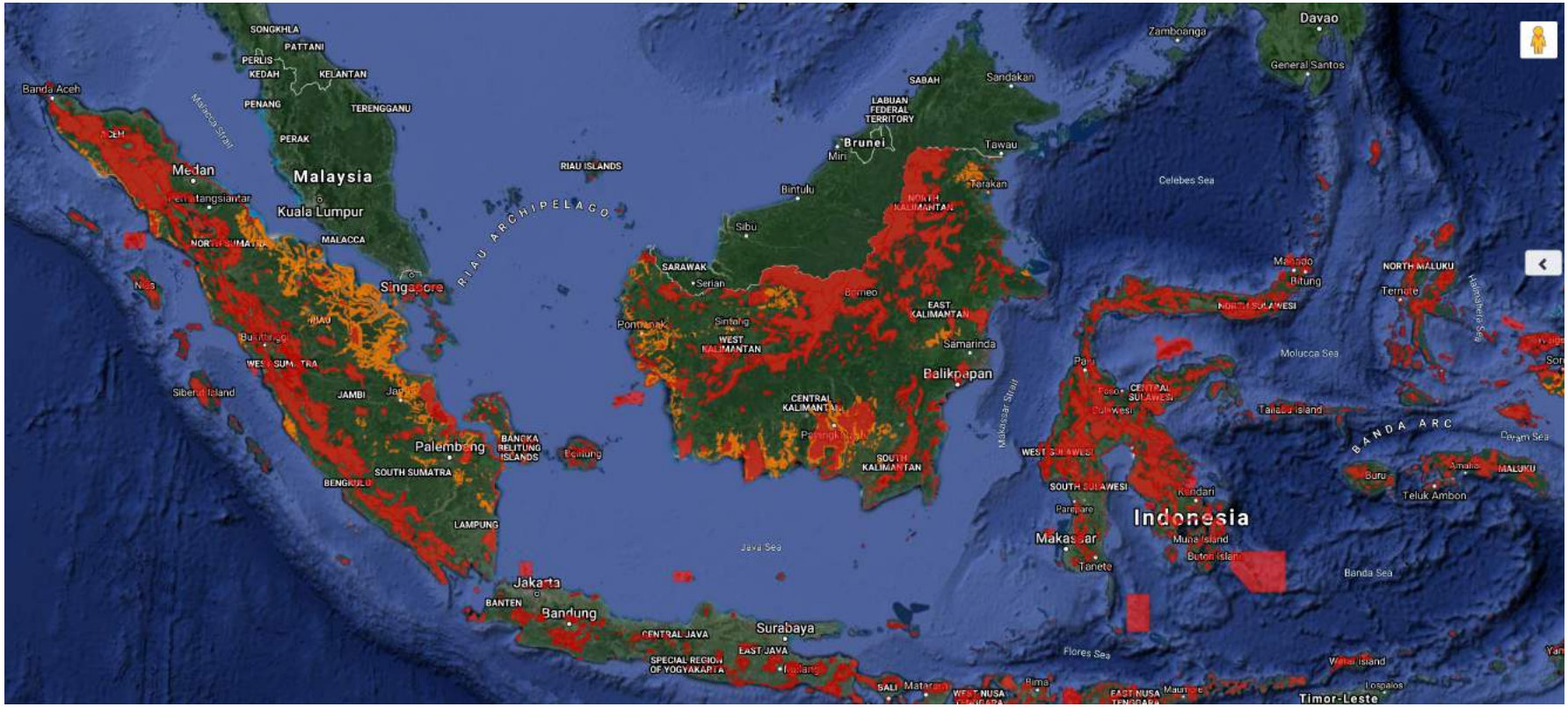
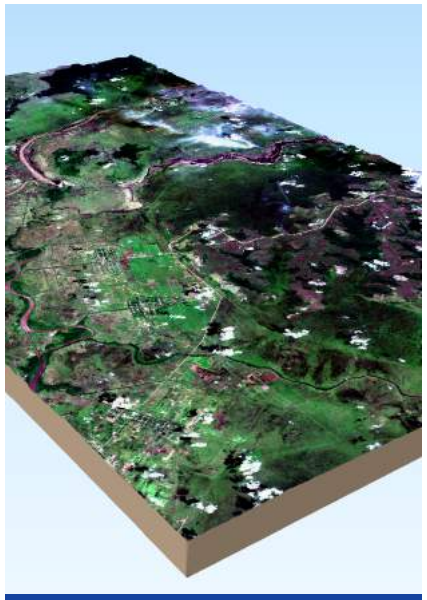
Auditors, CBs and system users are already using GRAS tool for risk assessment, but more is possible



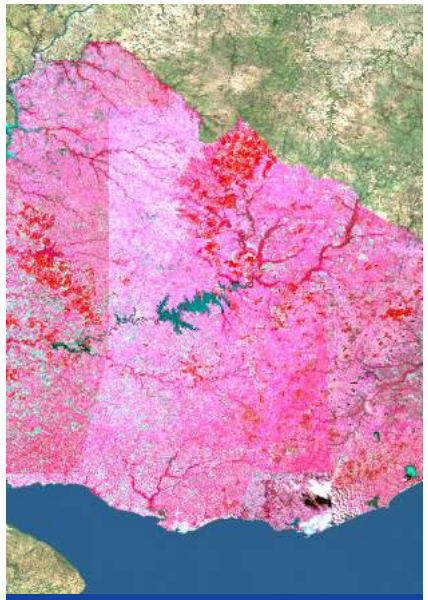
In order to prove compliance with ISCC Principle 1 system users would have to go beyond the capabilities of the existing GRAS tool (I)

Different satellite imagery with different resolutions have be applied to the regional requirements (crop, field size, etc.), e.g. a time series of satellite imagery is usually required to prove deforestation-free palm plantation

MODIS (250 m)



Landsat (30 m)



Sentinel-2 (10 m)

High resolution imagery (<1m-5 m)

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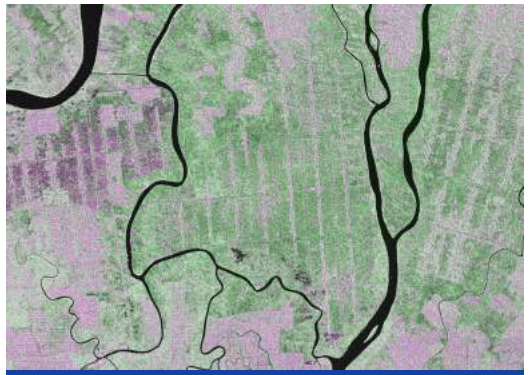
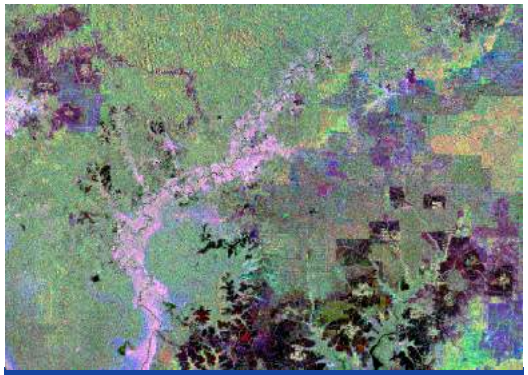
In order to prove compliance with ISCC Principle 1 system users would have to go beyond the capabilities of the existing GRAS tool (II)

Another example of remote sensing imagery is the high resolution radar imagery, i.e. SAR



Sentinel-1 2018

PALSAR-2 2017

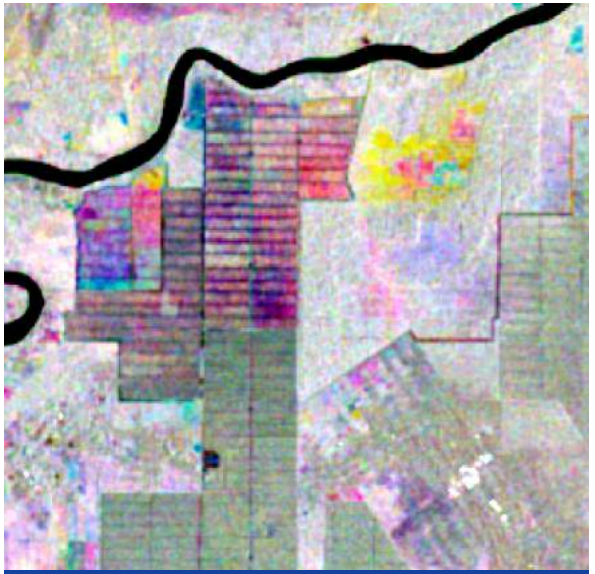


JERS-1 1998

GRAS is exploring the option to map palm plantations between 2008 and 2020 for the pilot region in Jambi based on Sentinel-1 and Sentinel-2 or ALOS PALSAR and Landsat 8 (I)

- Preliminary results are showing high accuracy mapping potential

GRAS palm plantation map



Sentinel-1 Quarterly stack

GRAS is exploring the option to map palm plantations between 2008 and 2020 for the pilot region in Jambi based on Sentinel-1 and Sentinel-2 or ALOS PALSAR and Landsat 8 (II)

- Preliminary results are showing high accuracy mapping potential

Palm plantation (high resolution imager)

GRAS automatic mapping of palm plantation (based on Sentinel-1 & 2)

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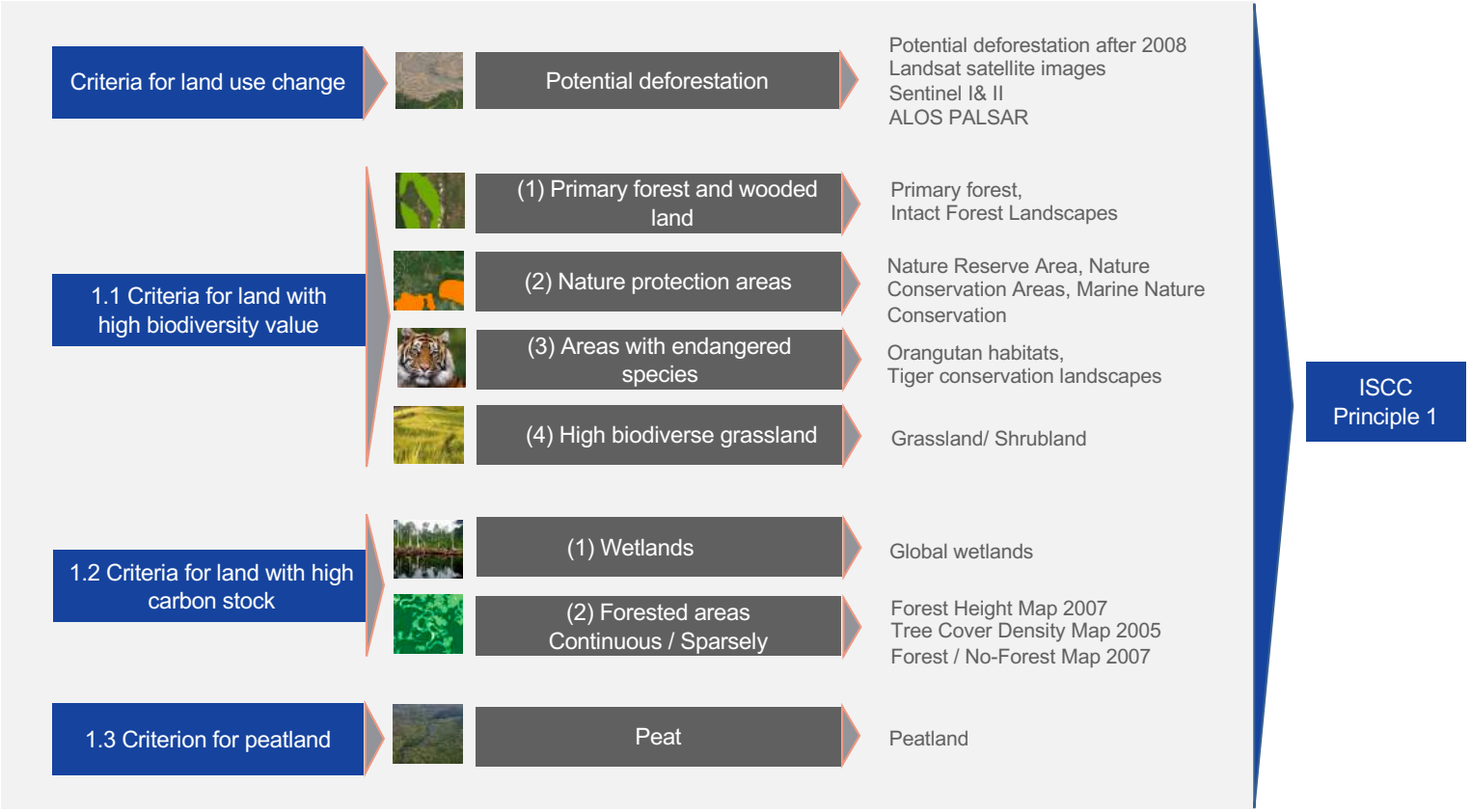
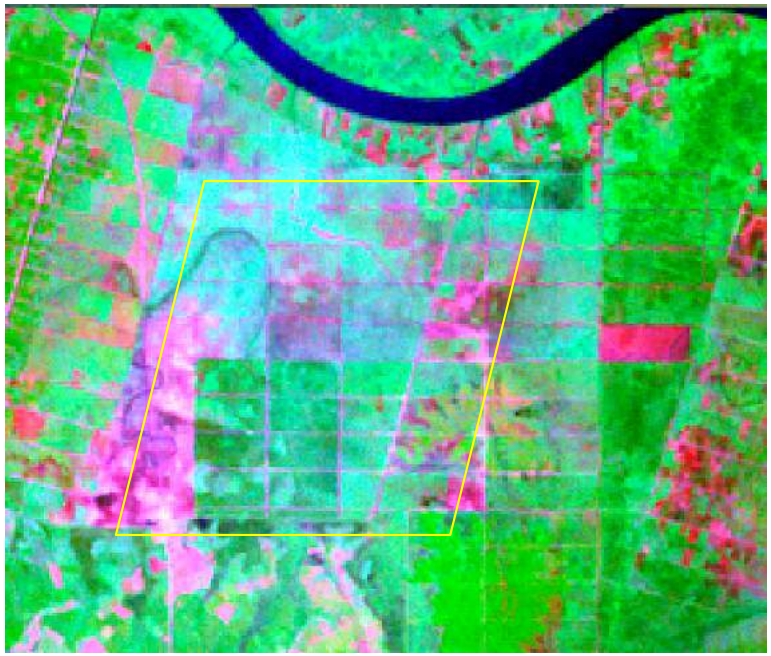
GRAS is in the position to compose the dataset in a way that a harmonized approach to verify ISCC Principle 1 can be implemented—thus providing one-level playing field



GRAS is currently combining all relevant datasets into a semi-automatic, local system to support verification of ISCC Principle 1

GRAS is preparing the following datasets for pilot in Jambi, Indonesia:

- Landsat 4, 5, 7 and 8 imagery
- Sentinel-2
- Sentinel-1
- ALOS PALSAR
- EVI time series
- Peatland
- No-go areas
- Wetlands
- LUC areas
- Tree height
- Tree cover
- Land cover maps
- Slopes
- fires
- …



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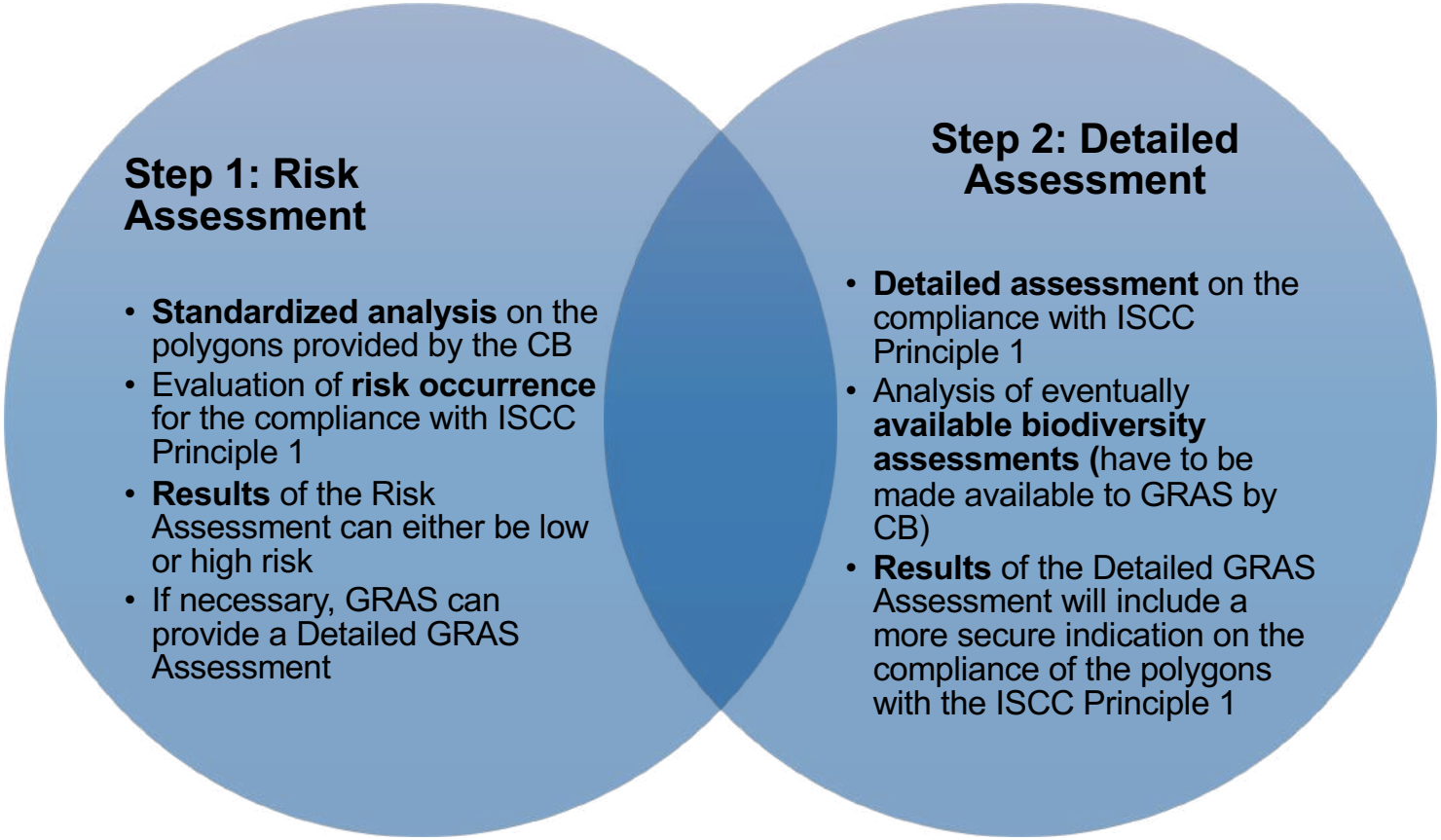
Depending on the result of the GRAS risk assessment, a detailed assessment might be needed (I)



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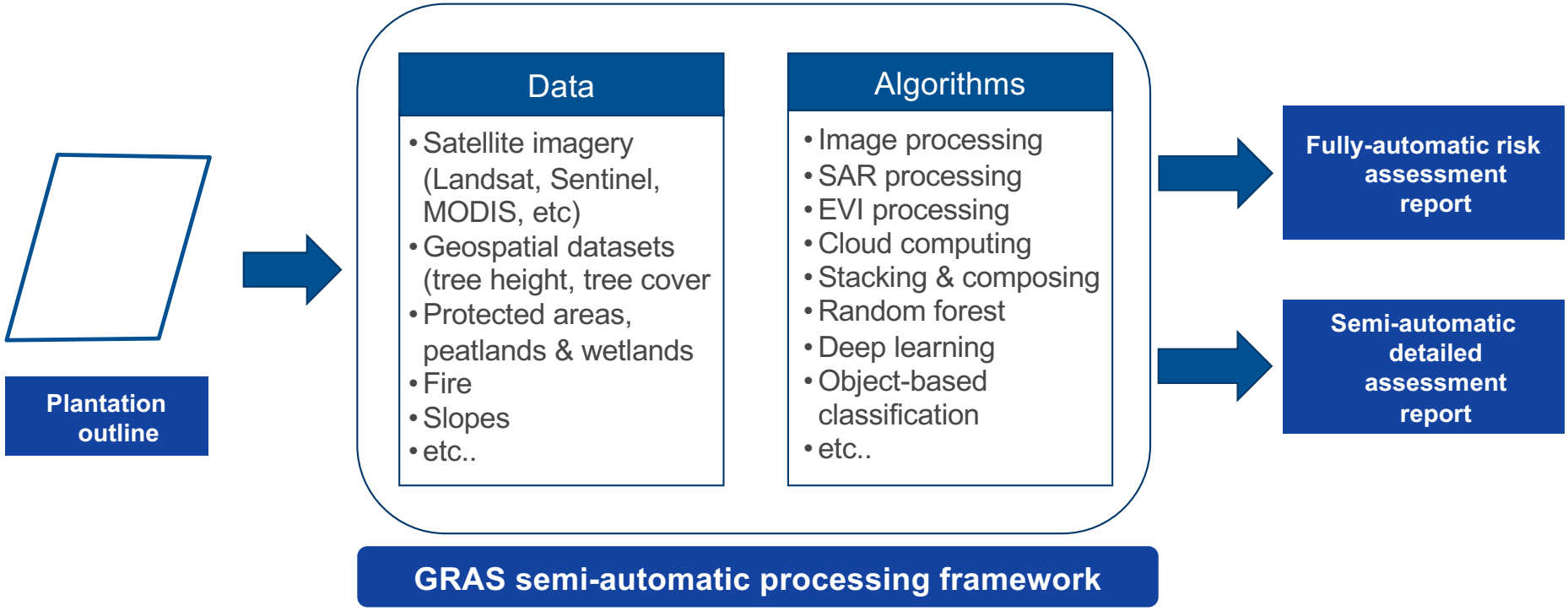
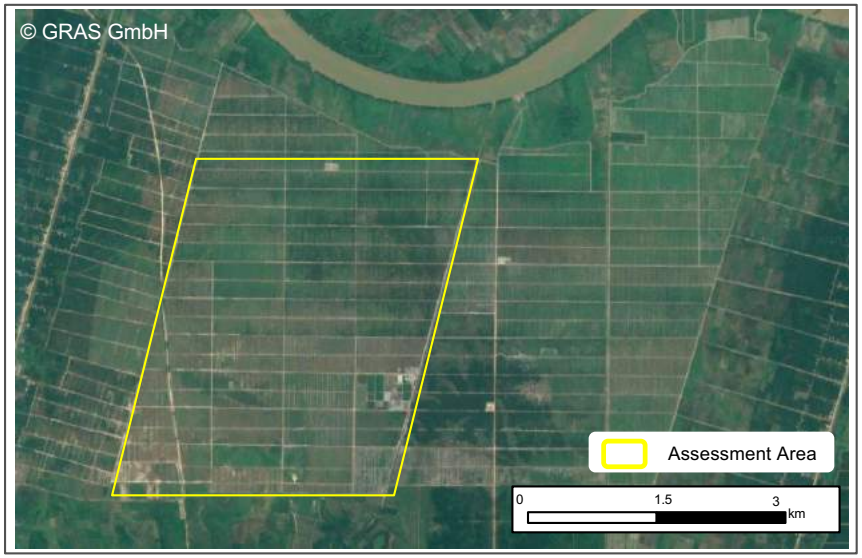
Depending on the result of the GRAS risk assessment, a detailed assessment might be needed (II)



The fully automated plantation risk report could provide an overview of the main risks of ISCC Principle 1 non-compliances



Results of risk assessment

Assessment Area: Pilot Plantation	
Country	Indonesia
Province	Jambi
Address	xxxx
Total area	1196 ha
Longitude	xxxxx
Latitude	xxxxx

Overlap	Sustainability Indicator	Main findings
Biodiversity	1.1. Land with potential high biodiversity values	0.0 ha (0 %)
Carbon	1.2. Land with potential high carbon stock	1095 ha (91 %)
Peatland	1.3. Overlap with potential peatland	0.0 ha (0.0 %)
Deforestation (after January 2008)	Potential deforestation (canopy cover 10-30%) Potential deforestation (canopy cover > 30%)	98 ha (8%) 0 ha (0%)

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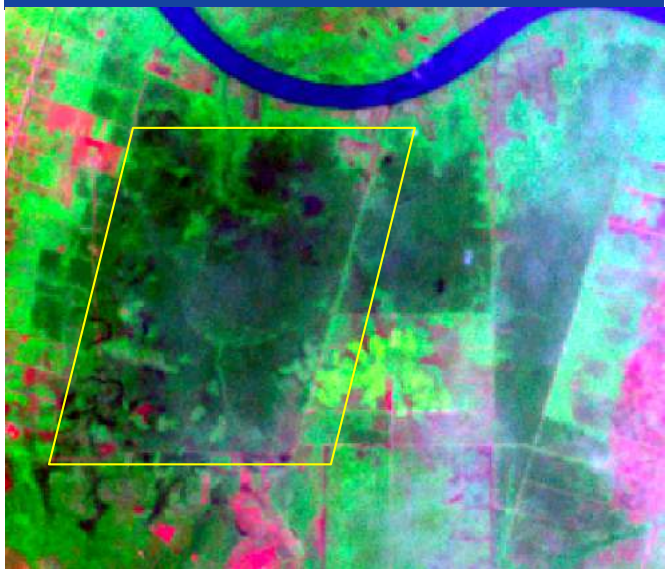
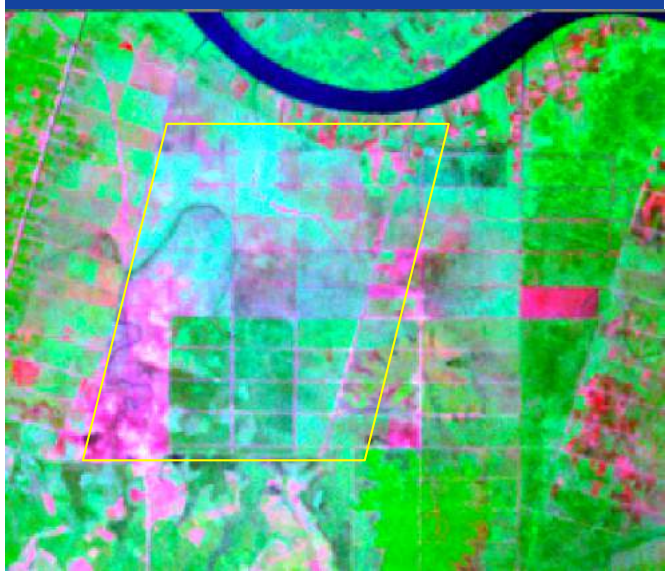
The automated report could also include selected datasets that are relevant for ISCC Principle 1 risk assessment (I)

An example is Landsat pansharpened imagery

Landsat, 16 May 2006



Landsat, 22 April 2009



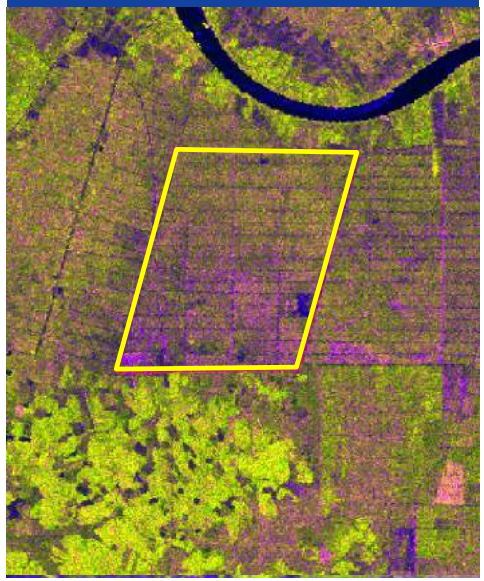
The automated report could also include selected datasets that are relevant for ISCC Principle 1 risk assessment (II)

Another example is high resolution radar data

Palsar 2007

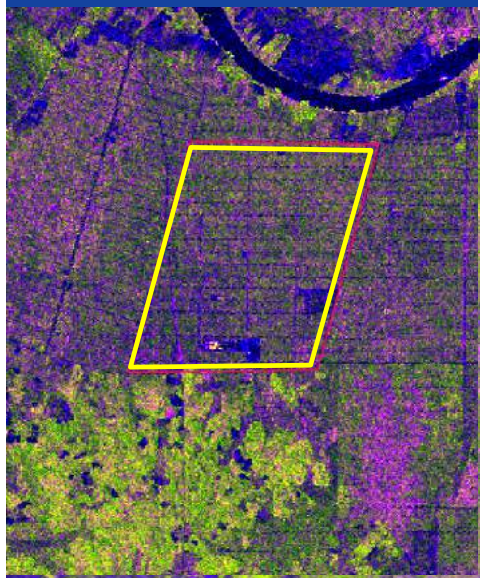
Source: Jaxa

Palsar 2015



Source: Jaxa

Palsar 2018



Source: Jaxa

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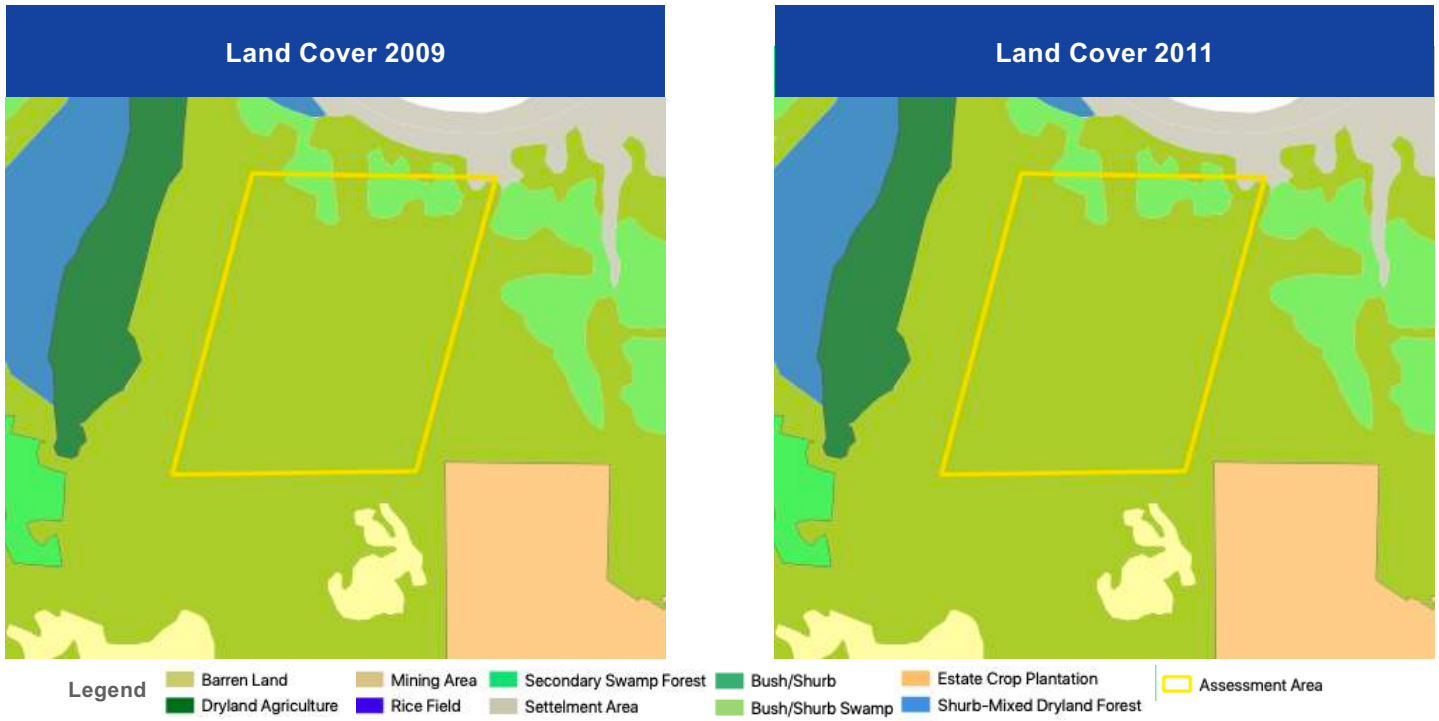
The automated report could also include selected datasets that are relevant for ISCC Principle 1 risk assessment (III)

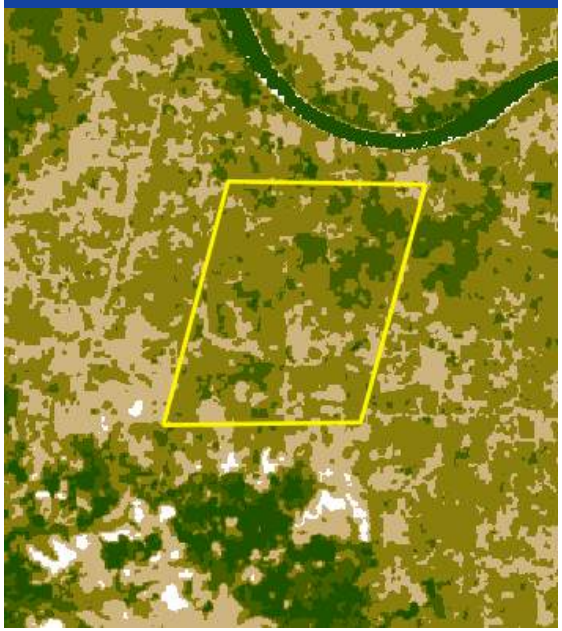
Land cover maps



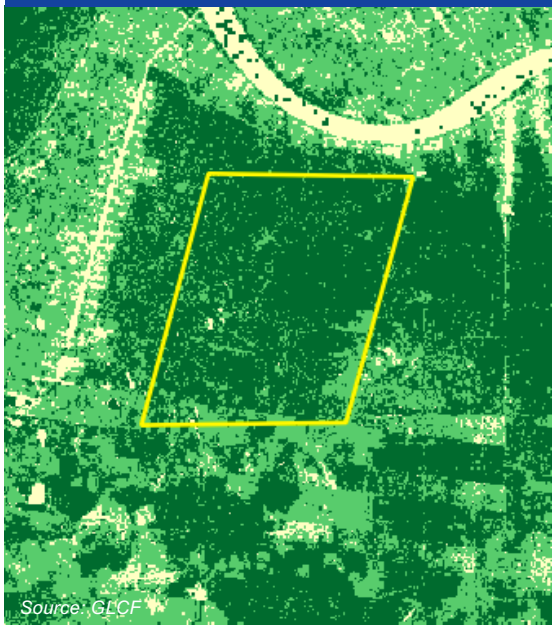
The automated report could also include selected datasets that are relevant for ISCC Principle 1 risk assessment (IV)

And other datasets: e.g. forest height, tree cover, wetlands, peatlands, fire, slopes, protected areas

Forest Height



Tree Cover Density



Outlook

- GRAS is conducting a pilot in Jambi to test the feasability of developing ISCC Principle 1 specitifc system to:
    - create fully-automated, comphrensive risk report
    - conduct cost-effective, semi-automatic detailed assessment
- We are also processing the relevant datasets for Jambi into appropriate format, e.g. Landsat time series, Sentinel 1&2, ALOS PALSAR, slopes, fire, protected areas, peatland
- Pilot result will be discussed and tested with ISCC

Thank you very much!

GRAS Global Risk Assessment Services GmbH
Hohenzollernring 72, 50672 Cologne, Germany
Email: info@gras-system.org, Website: www.gras-system.org