Implementing Effective Traceability Tools and Mobile Apps

Pascal Ripplinger
Questions and challenges

- Are the smallholders facing sustainability risks?
- Are the fields of the smallholders deforestation-free?
- How can smallholders be managed?
- How can smallholder certification be facilitated?
- How can I collect polygons of smallholder fields?
- How can I trace back the amount of sustainable FFBs?
- How can I analyze and visualize my data?
Support of sustainable smallholder farming

- App based mapping of smallholder field outlines
- Data management in an interactive smallholder management tool
- Analysis and visualization of smallholder data
- Smallholder certification support
- Secure integration of smallholders into sustainable supply chains
The Independent Smallholder (ISH) Data Management Tool

**Smallholder App**
- Collect basic ISH data, pictures and polygons

**Tracking App**
- Track FFBs’ delivery from ISH to the palm oil mills

**ISH Data Management System**
- Contains:
  - Database
  - Web application
  - Masks to enter, modify and export data
  - Creation of ISH QR-codes

**Data transfer**
- Register entities
- Add ISH data
- Update ISH data

**Visualization**
- GRAS Visualization Interface

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Why to use the ISH Data Management Tool

- Map the field outlines of all smallholders
- Easy collection of basic smallholder data and pictures
- Automated sustainability check of field outlines
- Trace back sustainable produced FFBs to ISHs
- Efficient smallholder management

<table>
<thead>
<tr>
<th>Basic data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smallholder Kit: mandatory</td>
</tr>
<tr>
<td>123/0067</td>
</tr>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>Street:</td>
</tr>
<tr>
<td>City, Place</td>
</tr>
</tbody>
</table>

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ISH Data Management System
Data of Central Offices (CO) and ISHs are stored in a database

- Store data, pictures, field polygons, geodata
- Add data to masks
- Modify data individually
- CO and ISHs have to be registered in the database
Add ISH to the Smallholder App by scanning their QR Code

Add a new ISH to the App in order to collect data

Scan QR Code in order to add ISH into the App

- QR-Codes are used to transfer smallholder’s specific information from the Smallholder App into the ISH Data Management System
- Scanning the QR-Codes help to avoid typos by entering basic smallholder data (e.g. ID number)
Collect additional data and photos for each ISH directly in the app

Add ISH data

Take photo of the ISH, ID and/or other documents
Collect field polygons (available also offline) and upload data
Automated sustainability assessment of fields against deforestation and biodiversity no go areas

Smallholder App

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

Collect GPS data

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.
GRAS Visualization Interface
All uploaded data can be accessed through the GRAS Visualization Interface
Specific reports within the GRAS Visualization Interface for each ISH
The results of the sustainability assessment and certification information are included in the reports.
Tracking App
The Tracking App allows to trace FFBs from ISHs to palm oil mills

✓ Identify amount of FFBs delivered by ISHs
✓ Identify amount sustainable produced FFBs
✓ Define delivery cycles of each ISH
✓ Information is uploaded to the database and linked to other smallholder data
✓ Assess the amount of FFBs delivered at the palm oil mills (POM)
✓ Monitor yield of smallholders
Example of a simplified FFBs supply chain from smallholders to palm oil mill

1. ISH delivers FFBs to a Collecting Point
2. FFBs are loaded on a truck
3. FFBs are delivered to the POM
4. POM weights FFBs
Data on delivered FFBs can be integrated in the ISH Data Management System
Smallholders deliver FFBs in regular cycles
ISH can define FFBs’ delivery cycles in the app and select a collecting point

The smallholder should:

- Select a CP and enter the amount of FFBs to be delivered to the selected CP
- Enter the cycle in which he will deliver the FFBs

Every 12 days

500 kg

(Example)
The collector weights the FFBs delivered by the ISH and these are loaded on a truck.
The collector enters the amount of FFBs for each ISH and adds the truck used for the transportation

The collector should:

- Add the delivering smallholders and their delivered amount of FFBs
- Add truck to the App for the respective collecting tour

Enter amount of FFBs

<table>
<thead>
<tr>
<th>ISH Name: Smallholder 1</th>
</tr>
</thead>
</table>

Amount of FFBs collected from the current ISH (in kg)

500

Add amount of FFBs

Scan Truck QR Code

Scan the QR Code of the truck collecting the FFBs

Add truck to the tour
Data on delivered FFBs can be integrated in the ISH Data Management System
The POM worker scans the truck’s QR code and enters the amount of delivered FFBs

The palm oil mill should:
• "Check-in” truck with QR code
• Only trucks with QR code can deliver sustainable FFBs
• Add the weight of the delivered FFBs to the App

Scan QR of the truck
Scan the QR code of the truck collecting FFBs

Enter total amount of FFB at the POM
Please enter the amount of FFBs (amount weighted at the truck scale), which have been delivered to the Palm Oil Mill 1 by the truck.
Please be aware to enter only the amount of FFBs coming from traceable ISHs
Amount of FFBs (in kg)

“Check-in” truck
The truck has no QR code
Enter manually

Add amount of FFBs delivered by the truck

8500
Proceed
Cancel truck
In the ISH Data Management System reports can be printed on the delivered FFBs in specific time periods

<table>
<thead>
<tr>
<th>Collecting Tour ID</th>
<th>Date and time of FFB delivery</th>
<th>Name of the POM</th>
<th>Number of own certified ISH involved in the collection</th>
<th>FFBs measured at the POM (Kg)</th>
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<tbody>
<tr>
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<td>POM 1</td>
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<td>2000</td>
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<td></td>
<td></td>
<td></td>
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Period of Assessment: May 2018

<table>
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<th>Collecting Tour ID</th>
<th>Date and time of FFB delivery</th>
<th>Name of the POM</th>
<th>ISH’s NIK</th>
<th>FFBs measured at the POM (Kg)</th>
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<tbody>
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</table>
Thank you for your attention!

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