ProForest

Developing a mechanism for palm oil traceability from plantation to end user

Discussion paper1

A background review of supply chain traceability options

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Introduction

The Roundtable on Sustainable Palm Oil (RSPO) is a global, multi-stakeholder initiative on sustainable palm oil. Members of RSPO, and participants include plantation companies, manufacturers and retailers of palm oil products, environmental NGOs and social NGOs from many countries that produce or use palm oil. The principal objective of RSPO is "to promote the growth and use of sustainable palm oil through co-operation within the supply chain and open dialogue between its stakeholders".

The first RSPO meeting was held in Kuala Lumpur in August 2003, where it was agreed that the necessity for a credible definition of sustainable palm oil production would be provided through the development of a set of criteria. These criteria are now complete, and set out in detail the way in which palm oil processing should be managed.

At the second RSPO meeting in Jakarta in October 2004, it was agreed that in order to promote the use of sustainable palm oil it would be necessary to have a mechanism for linking the palm oil being used by RSPO members and other responsible users (including industrial users of palm oil based substances) with the oil palm plantations being managed in accordance with the RSPO criteria. This was seen as critical to the success of the criteria as they were more likely to be implemented in plantations if there was a clear market demand for the oil produced. Consequently a decision was made by RSPO to support a study aiming to develop a fuller understanding of possible supply chain traceability options for RSPO oil.

The study, funded by the Doen Foundation, and undertaken by a team of RSPO members, has two main phases:

- Firstly, identifying possible options for managing the supply chain and establishing which were the most appropriate for RSPO.
- Secondly, elaborating and field testing the selected options.

This paper provides a background discussion of the first stage of the study. It discusses the mechanisms used by other commodity sectors that should be considered by RSPO for their purposes in managing the RSPO supply chain.

The first section introduces the chain of custody (CoC) process and describes five current approaches to commodity trading in the natural resource sector. Within each of these approaches is included an example of existing traceable approaches employed in some sustainability initiatives in the natural resource commodity sector, in order to determine the feasibility of the practical applications of the options to the RSPO oil trade.

The second section looks at verification options that are used to demonstrate that users are implementing RSPO requirements.

1. Approaches to traceability for RSPO oil

The most widely-used approach to traceability through supply chains is 'chain of custody'. The general principles of chain of custody (CoC) are introduced in Section 1.1, followed by a discussion of the options for RSPO from existing approaches in Section 1.2.

1.1. Introduction to Chain of Custody

Chain of custody (CoC) is a mechanism for tracing product through the supply chain from its origin to end use. For palm oil this involves tracing from the plantation and primary processing through each stage of refining and manufacture to the final oil-containing product. This is shown schematically in Figure 1.1.

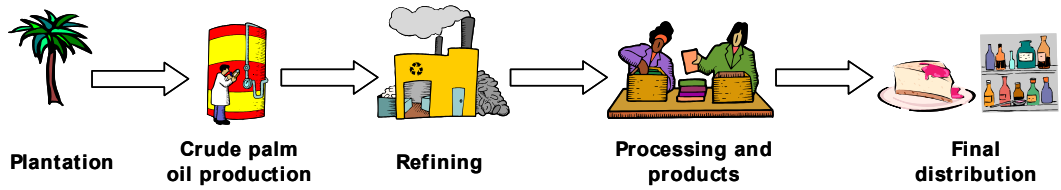


Figure 1.1: Schematic representation of the palm oil supply chain from plantation to final product

There are a range of ways in which chain of custody can be implemented, but in practice the basis for most approaches is to implement and verify control for each organisation (primary producer, refiner, manufacturer etc) in the chain. There are four main elements to this control (see figure 1.2):

- Control of product sourcing: Adequate control of purchasing and goods inward to ensure that only materials meeting specific standards/requirements (e.g. RSPO criteria) are purchased and that a link is established with the previous organisation in the chain.
- Control of production process: Proper control of the internal processing of the specified material including reconciliation between the quantity of the specified material bought and the quantity of product sold.
- Control of sales and dispatch: Adequate control of sales and dispatch of final products to ensure that only materials meeting the specified requirements are sold and dispatched as such and that a link is provided to the next organisation in the chain.
- Controls of labels and claims: Control of claims and labelling in accordance with procedures specified by the standards or scheme

For each of the options discussed in the next section, the way in which these controls can be implemented in practice is discussed.

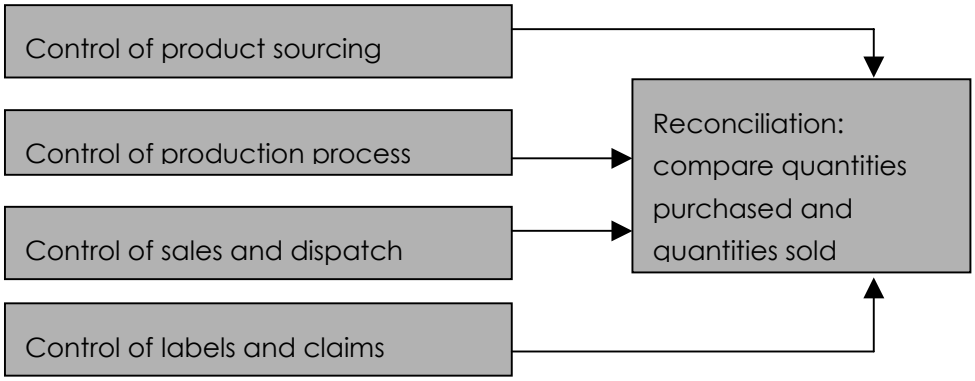


Figure 1.2 the main elements of chain-of-custody control for an organisation within the supply chain

1.2. Chain of Custody Approaches

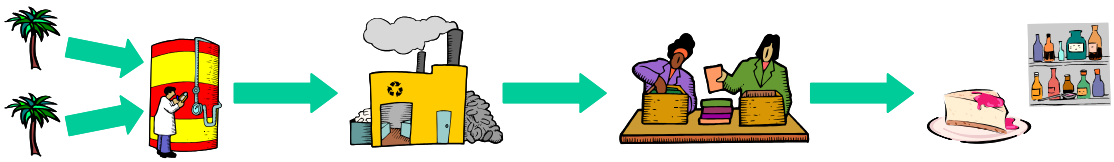
This section describes for each CoC approach:

- The supply chain and how it works in practice;
- Advantages and disadvantages of applying the supply chain;
- Case study examples of how each supply chain mechanism works in practice.

Five different approaches have been suggested for linking the oil coming from plantations implementing the RSPO criteria (hereafter referred to as RSPO oil) with responsible users of palm oil. These are:

- Bulk Commodity (Grade Oil)
- Identity Preserved (IP)
- Percentage-in Percentage-out
- Percentage % Based Claims
- Book and Claim Approach

1.2.1. Bulk Commodity ('RSPO Grade Oil') Approach



Development of RSPO oil as a 'grade' of palm oil would allow it to be traded as a commodity while still keeping it separate from conventionally produced palm oil. This would be based on the use of CoC on a large scale so there would not be any link between a particular batch of RSPO oil and a specific plantation, but all RSPO oil

would have originated in a plantation implementing the RSPO criteria. This approach would be appropriate once supply and demand is for tens or hundreds of thousands of tonnes of palm oil per annum.

Advantages and Disadvantages

The advantage of this approach in which all 'RSPO oil' originates in a RSPO plantation is that it is clear and easy to communicate. The advantage in relation to IP is that by operating at a large scale, costs are better controlled.

The disadvantage relative to the IP approach is that it cannot be implemented in isolation, but depends on the production and use of sufficient quantities of RSPO oil to allow a bulk commodity to be created. The disadvantage in relation to controlled mixing is that it requires segregation of RSPO oil throughout the supply chain which can be costly.

Case study:

Organic Food, sourcing from farm to customer

Organic food is a sector where segregation is essential, but food from different producers is regularly bulked. Such bulking must be acceptable from a number of different regions with different local regulations. Despite this difference standards must be maintained by the organic certification standards. An example of the approach of one organic distributor is set out below:

Produce from the UK: All goods leaving the farm are accompanied by delivery notes stating the quantity and type of product being dispatched. Each delivery note is checked against the delivery when it is received at the distribution center.

Products from the UK are delivered in two ways. Either by the farmer themselves or dedicated lorries which visit several farms on each trip. Each farmer will have a delivery note that they give the lorry driver and this is checked against the delivered goods.

Produce from Europe: Products from Europe work by the same system but there is an additional layer of control called a CMR. This is a legal document that accompanies the product from the point of departure to delivery at the distribution center.

Produce from outside-Europe: Any goods coming in from outside the EU are accompanied by documents that are signed by the port authority of the country of origin and stamped by the port authority of the port of arrival. These documents have to be kept for 24 months. The products cannot be sold as organic unless they have the original documents on file.

All goods (whatever their origin) have to be clearly marked on the delivery note and each box as organic. This is also checked at the goods-in stage and each delivery note is stamped confirming these checks have been made.

All the goods are then dispatched.

Source: Able and Cole, A 'direct to your door' independent organic distributor.

1.2.2. Identity Preserved (IP) Mechanism

Identity Preserved (IP) mechanisms of commodity production were developed to redress this trade disconnection between producers and processors or retailers and consumers. Unlike conventional bulk commodity production, IP commodity production allows a commodity to be differentiated in the market. This is achieved through a combination of contract farming, information and tracking technology[1], production, processing, and distribution technologies, and process standards. IP technology has so far largely been applied to managing risk, for example, in excluding GMOs from supply chains, or ensuring quality, such as enhanced starch quality in maize. Use of this technology is growing. General Mills, for example, expect that within three to five years, half their total grain usage will be identity preserved.[2] There are possibilities of widening the set of attributes to include sustainability of production, processing and handling. It can be concluded that if the retail or processing end of the chain starts to demand products from environmentally friendly production systems, the technology exists for commodity systems to respond to meet those demands, albeit with cost implications.

Chain of custody based on the Identity Preserved mechanism requires segregation of RSPO oil throughout the production process to provide traceability from a specific plantation or primary processor to the final users. This approach is probably most appropriate for relatively small-scale situations and has already been used for palm oil in association with the MIGROS Criteria[3] for Responsible Oil Palm, for quantities of 2-3000 tonnes per annum.

Advantages and Disadvantages

The advantage of this approach is that companies can implement it without the need for any external framework provided they are able to bear the cost. It has already been used in the sector (based on controls implemented for organic palm oil) providing a model which can be used immediately. It also provides the basis for a very clear marketing message.

The disadvantage is that it is expensive and work-intensive to achieve; even oil from different RSPO sources has to be segregated.

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[1] Such as that developed by IdentityPreserved (see http://www.identitypreserved.com) or efarm (see http://www.efarm.com/)

[2] Ron Olson, General Mills Grain Divisions, September 2001, cited in Shipman (2002)

[3] The MIGROS Criteria was developed for use by MIGROS specifically to ensure responsible production of palm oil from sources supplying raw material to the MIGROS production chain.

Case study:

Stage by stage handling of IP crops from the seed company to the end customer

The IP system is necessarily technical as each stage must be stringently separated and controlled from the last stage and all sources must be monitored. Other industries that use this system include the meat and the GMO free agricultural commodities.

Stage 1 Production: The growers and customers define the specifications and testing procedures. The Seed Company supplies seeds to the grower and provides certificates to the grower.

The grower tests samples of the seed to reconfirm purity; selects field locations based on ability to segregate to prevent contamination; cleans all equipment used throughout the process and plants the field.

The customer inspects field for contamination and management practices.

Stage 2 Shipment handling: The grower cleans transportation handling equipment, storage facilities and harvests and stores the product. They then test a sample product. The customer calls for the delivery of a specified quantity of product.

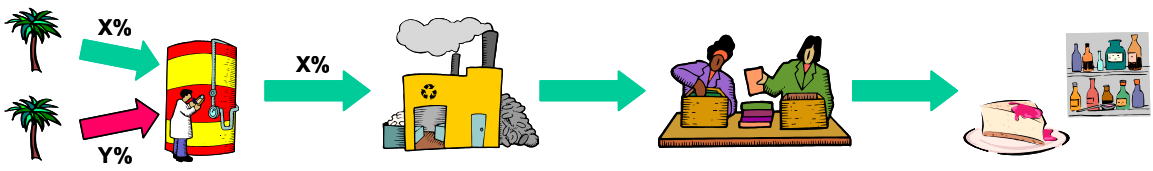
The grower cleans the handling and transportation equipment, loads the product assuring there is no contamination and using a bulk liner (container) ship the product, and provides certificates to the customer.

Stage 3 Delivery documentation: The customer separates and cleans storage and handling equipment; tests delivered product; stores product; processes each lot of product separately to allow for traceability of product back to grower.

Stage 4 Archiving documentation for future reference: The grower retains all records for two years (e.g., planting date, field number, seed identity, inputs used, harvest date, storage bin number, handling and transportation, equipment numbers, delivery date, etc.).

Source: Vorley B. (2005). Non-conventional initiatives for sustainable commodity chains: with focus on traded bulk commodities).

1.2.3. Percentage -in Percentage-out (mass balance)



The percentage-in percentage-out approach allows mixing of RSPO and non-RSPO oil at any stage in the production process provided that the quantities are controlled. However, instead of attaching a RSPO percentage to all production, The percentage of RSPO oil entering production is monitored and an equivalent percentage of the product is labelled as RSPO. No direct link is required between the raw material and the product but there is a direct link between the volume of RSPO oil produced and the volume of product sold as RSPO oil. This provides the basis for a claim that links the product to RSPO production but does **not** allow for any claim about the actual content of the product. Advantages and Disadvantages

The advantage of this approach relative to segregation is that it is much cheaper and straightforward to implement. In addition, the link between the volume of oil produced and the volume of product sold is maintained, ensuring that any increased demand by users results in increased demand for supply which is not the case with the %-based claims model discussed below (see 1.2.4).

The disadvantage is that it breaks the direct link between production and use because the actual oil used could be from any source. An additional issue is the need to consider some degree of control on the sources of the non-RSPO oil.

Case study:

Forestry Stewardship Council (FSC) Controlled mixing approach

Very early on in the development of the FSCs ten years experience running a certification scheme, it became apparent that for many products it would be possible to source some of the raw material from certified forests, but almost impossible (at least initially) to source all of it from certified sources. As a result a decision was made to allow certified products to contain a mixture of certified and uncertified material.

Initially this was achieved through 'percentage labelling'. Products labels indicated the percentage of certified material in the individual product or product line (eg 70% of the material used to make this product is from certified sources). In this approach, all of the product from a particular process could be labelled with the percentage label.

While this approach worked reasonably well, and was adopted by other emerging timber certification schemes, there were also serious issues which needed to be addressed:

Control of the uncertified material: it quickly became clear that it would undermine the credibility of certified product if the uncertified material they contained was from controversial or poorly managed sources. Therefore, a set of requirements for the uncertified material – less rigorous than certification but providing an acceptable baseline – was introduced.

Control of minimum certified content: although the approach was developed to try to simplify the implementation of chain of custody controls, in some situations the

availability of certified raw material was so varied that complex systems were still needed to ensure that all product contained the stated minimum.

Demand for certified raw material: because all products made were considered certified (using a percentage-based label or claim), increased demand for certified product did not feed back into increased demand for certified raw material (and thus greater areas of sustainably managed forest).

As a result, a decision was made by a working group including industry, environmental NGOs and social organisations that a new approach should be used – mass balance or percentage-in percentage-out. This approach allows a proportion of product equal to the proportion of certified raw material to be considered certified.

This has two advantages relative to %-based claims. Firstly it removes the need to control the minimum certified content of individual products greatly simplifying management. Secondly, it re-establishes a direct link between the volume of certified material purchased and the volume of certified product sold, ensuring that as demand for certified product grows, so does demand for certified raw materials.

Source: FSC International (www.fsc.org)

1.2.4. Percentage (%) Based Claims

The % based claims approach allows mixing of RSPO and non-RSPO oil at any stage in the production process provided that the quantities in a particular product or product line are controlled, and that all claims made indicate clearly the proportion of oil from RSPO sources.

In this approach, the percentage of RSPO oil entering production is controlled to ensure that it always meets a defined minimum amount (X%). All oil produced can then be labelled as X% RSPO. This provides the basis for the end-user to claim that a product contains X% RSPO oil.

Advantages and Disadvantages

The advantage of percentage labelling is that it removes the need for complete segregation of RSPO oil while still maintaining the link between the RSPO oil and plantations implementing the RSPO criteria. It would also allow producers to continue to purchase non-RSPO oil from small-holders while producing a RSPO product.

The disadvantage relative to the segregation approaches discussed above is that non-RSPO oil is included in the RSPO product. The disadvantage relative to the mass balance approach is that because **all (**100%) of production can have a claim attached to it, eg 30% RSPO, there is no pressure to increase purchases of RSPO oil to reflect increasing demand from customers.

1.2.5. Book and Claim Approach

The book and claim approach addresses supply chain control in a very different way from the approaches discussed above. Rather than seeking to have traceability through each stage in the supply chain (see Figure 1.1) it relies on providing a direct link between the volume of RSPO oil produced at the beginning of the chain and the volume of oil purchased at the end of the chain (see Figure 1.3).

Thus, in the book and claim approach a user specifies RSPO oil to a supplier who then ensures that an equivalent quantity of RSPO oil is purchased from a plantation implementing the RSPO criteria. This approach is based on ensuring that when RSPO oil is specified by a user, that quantity of RSPO oil enters the supply chain, but it does not seek to make any physical link between plantations implementing the RSPO criteria and the user requesting RSPO oil – the actual oil delivered could be from any source. This approach is dependent on the existence of a robust mechanism to ensure that whenever RSPO oil is specified it is actively purchased and enters the supply chain.

Two key issues that RSPO would need to consider are the determination of the 'book and claim' procedure for product purchasing and supply, and the determination of minimum criteria for auditing procedures and maintaining supply chain credibility.

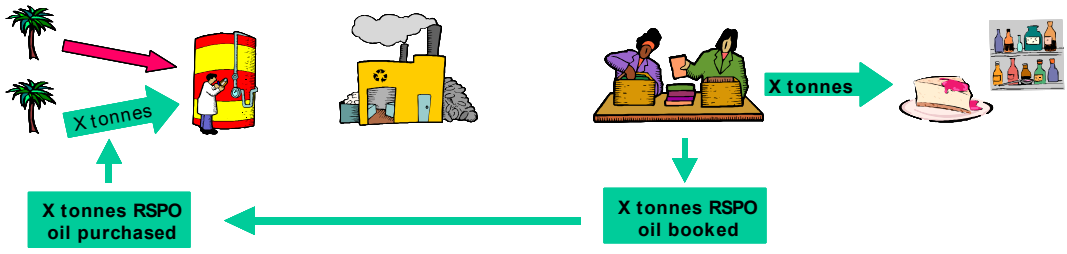


Figure 1.3: Schematic representation of the book and claim approach for palm oil

Advantages and Disadvantages

The advantage of the book and claim approach is that it removes the necessity for costly product tracing through the production process while still maintaining a direct link between demand and supply of RSPO oil.

The disadvantage is that the actual oil used could be from any source breaking the physical connection between production and use.

Case study:

Green-e Renewable Energy Certification Programme

Green-e certifies renewable electricity products that meet a set of environmental and consumer protection standards. The standards were developed by the US's Green Power Board and Green Pricing Accreditation Board.

A tradable renewable certificate (TRC) is created when a renewable facility generates electricity. Each TRC is unique and represents all of the environmental attributes or benefits of a specific quantity of renewable generation, namely the benefits that everyone receives when conventional fuels, such as coal, nuclear, oil, or gas, are displaced.

How the scheme operates: When a renewable energy facility operates, it creates electricity that is delivered into the national grid. To facilitate the sale of renewable electricity a system was established that separates renewable electricity generation into two parts: the electricity delivered into the grid and the environmental attributes or benefits of that generation. The environmental attributes are sold separately as renewable certificates

The user of Green-e renewable energy makes a request to a supplier (or service provider) who ensures that the right amount of energy is delivered through the national grid to the user. The supplier however, is not obliged to provide information to the user which links the energy being supplied to any source of renewable energy facility (e.g. wind, geothermal etc).

To be able to supply renewable energy through the national grid to users, the supplier participates in the Green-e certification scheme as a certified provider. Under the scheme, the supplier purchases a certificate identifying him/her as the sole owner of the environmental attributes of a specific megawatt hour (MWh) of energy added to the grid. Independent verification ensures that no two certificates represent the same MWh of energy. The purchase of renewable certificates allows the supplier to offset conventional electricity generation in the region with the corresponding renewable generation, which is connected to the grid.

Supply chain verification: Certified providers undergo an annual verification audit to document that the company purchased enough quantity and type of renewable certificates to meet customer demand and marketing claims, and that the renewable certificates are sold only once. Retail or wholesale power marketers who participate in the Green-e programme conduct the annual verification process. The power marketer must employ an independent certified public accountant or certified internal auditor to conduct this verification in accordance with the procedure set forth in the Green-e Annual Verification protocol. The verification process is based on company contracts, invoices and billing statements.

Source: www.green-e.org

2. Verification

2.1. Approaches to verification

Once RSPO products are on the market companies producing, buying and selling RSPO products will make business claims to promote the product. As well as ensuring that the preferred supply chain for RSPO functions effectively, it is important that these claims are justified, proven and authentic in order to maintain product credibility. Such credibility will only be maintained if there is a transparent verification process in place undertaken by a competent and recognised verification organisation. To achieve this will require:

- A verification procedure that is transparent and credible;
- A competent and recognised verification organisation.

There are three potentially applicable verification options for RSPO. These are:

- **Self-declaration:** claims about RSPO oil could be made based on the self-declarations by producers that chain of custody controls is in place. The advantage of this approach is that it is very cheap and easy to implement. The disadvantage is that in practice self-declarations are unlikely to have any credibility with the market.
- **Verification by RSPO-approved experts:** this involves developing a set of criteria for approving experts or organisations as verifiers. Anyone wanting to make claims about RSPO oil would then need to have their chain of custody controls checked by a RSPO-approved verifier. The advantage is that it is likely to be accepted by a wide range of stakeholders and still be cheaper than independent certification. The disadvantage is the RSPO has to be responsible for maintaining the quality of the approved experts and the work they do.
- **Independent certification:** this involves developing an independent certification programme. This would allow any claims about RSPO oil to be based on certification of chain of custody. The advantage of this approach is that it is the most credible with the market and, once established, will run independently of RSPO. The disadvantage is that it would be the most expensive option.

2.2. Smallholders

Any system implemented has the potential to isolate smallholders for several reasons:

- Implementation can be difficult and smallholders often need support and advice to help implement the criteria;
- Verification of individual growers is disproportionately expensive to the volumes produced.

In other sectors these issues have been dealt with through development of a group-based approach. Such a group is co-ordinated by a group manager who:

- Provides support for group members on implementation;
- Checks that the members are meeting the requirements of the scheme.

Verification is then of the group as a whole and only requires a sample of group members to be checked during a verification exercise, thus providing economies of scale.

An example of a sector where smallholder production is common is in forestry. The FSC group certification scheme has been successful in ensuring that small-scale producers have access to certification.

Group schemes could probably be developed relatively easily in many instances through existing organisations such as outgrower schemes or smallholder associations.

3. Conclusion

It is clear that all the approaches to CoC could be used in the oil palm sector. However, it is also apparent that the different approaches have differing degrees of RSPO traceablility. The key question that the RSPO must consider is which approach is the most appropriate and how important are the different levels of traceability.

The verification options also play into the RSPO CoC options. Some of the approaches will not be as credible with RSPO stakeholders without strong verification and others will need strong verification to support traceability for RSPO businesses to remain credible in the market place.