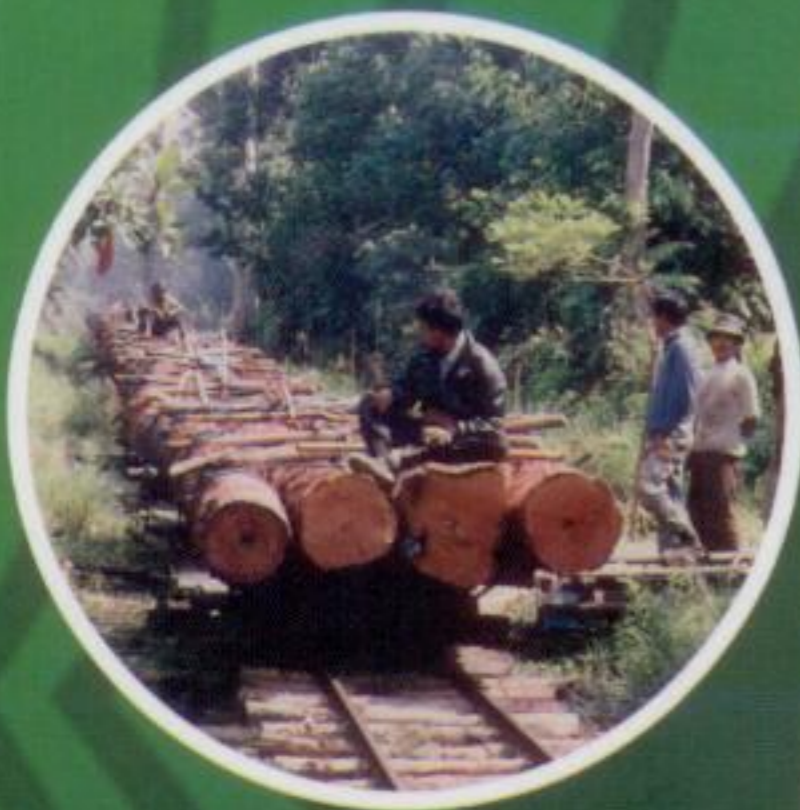


ASEAN Guidelines for Chain of Custody of Legal Timber and Sustainable Timber



**KOREA-INDONESIA
FOREST CENTER**



ASEAN GUIDELINES FOR CHAIN OF CUSTODY OF LEGAL TIMBER AND SUSTAINABLE TIMBER



**KOREA-INDONESIA
FOREST CENTER**

ISBN : 978-602-8411-76-9

Table of Contents

Foreword	i
Table Of Contents	iii
1. Introduction	1
1.1. Background	1
1.2. Methodology	1
1.3. Structure of the Guidelines	2
2. Definitions	3
3. Chain of custody fundamentals	5
3.1. Quantities	6
3.2. Controls	6
3.3. Principles	6
4. ASEAN Guideline for Chain of Custody of Legal Timber	9
4.1. Introduction	9
4.2. Chain of custody system	9
4.2.1. Within the forest	9
4.2.1.1. Log identification	9
4.2.1.2. Documentation	9
4.2.2. Transportation and storage	9
4.2.3. Inside processing facilities	10
4.2.3.1. Approval of purchases	10
4.2.3.2. Verification of delivered timber	10
4.2.3.3. Segregation	11
4.2.3.4. Storage	11
4.2.3.5. Processing	11
4.2.3.6. Sales	11
4.2.3.7. Management system	11
4.2.3.7.1. Management responsibilities	11
4.2.3.7.2. Responsibilities for implementing chain of custody ...	12
4.2.3.7.3. Document system, record keeping and regular reconciliation	12
4.2.3.7.4. Internal audits	12
4.2.3.7.5. Training	12
4.3. Certification body operating verification of chain of custody for legal timber ..	12
5. ASEAN Guideline for Chain of Custody of Sustainable Timber	13
5.1. Introduction	13
5.2. Chain of custody system	13
5.2.1. Within the forest	13

5.2.1.1. Log identification 13

5.2.1.2. Documentation..... 13

5.2.2. Transportation and storage..... 14

5.2.3. Inside processing facilities 14

5.2.3.1. Approval of purchases 14

5.2.3.2. Verification of delivered timber 14

5.2.3.3. Storage 15

5.2.3.4. Processing 15

5.2.3.4.1 Physical separation method 15

5.2.3.4.2 Percentage-based method..... 15

Controversial sources..... 15

Minimum thresholds 16

Categorizing materials 16

Methods for controlled mixing 16

Individual product-based percentage..... 16

Product line or process-based percentage 16

Transfer of the calculated percentage to the outputs ..17

Average percentage method 17

Volume credit method 17

5.2.3.5. Claims and labeling..... 17

5.2.3.6. Sales 17

5.2.3.7. Management system 18

5.2.3.7.1. Management responsibilities 18

5.2.3.7.2. Responsibilities for implementing chain of custody ... 18

5.2.3.7.3. Document system, record keeping and regular
reconciliation..... 18

5.2.3.7.4. Internal audits..... 18

5.2.3.7.5. Training 18

5.3. Certification body operating certification of chain of custody for
sustainable timber 18

6. References 20



1. Introduction

1.1. Background

The Working Group on a PanASEAN Timber Certification Initiative has been operating since 2002. The Group's main objective is to encourage coordination and cooperation among the ASEAN Member States in their efforts to implement credible forest certification. At the 5th Meeting of the Working Group in Chiang Mai in December 2005, the principles, procedures and governance aspects of the draft *ASEAN Guidelines on Phased Approach to Forest Certification (PACt)* were agreed. At the 7th Meeting of the Working Group in Nay Pyi Taw, Myanmar in April 2008, the elements of the ASEAN Definition of Legality of Timber within the PACt Program were approved. The following six elements were agreed:

- Compliance with all relevant forest laws and regulations
- Payment of all statutory charges
- CITES compliance
- Implementation of a system that allows for the tracking of logs to the forest of origin
- The timber must be harvested by parties who have the legal rights to carry out the logging at the designated forest area based on an approved cut
- The party which harvests the timber shall comply with the laws governing social and environmental aspects, i.e. workers' safety and health, as well as environmental impact assessment

In these discussions, it was recognized that legality verification and forest certification systems needed to be backed by rigorous Chain of Custody (CoC) procedures. As part of its regional program to provide assistance to ASEAN efforts to encourage legal timber trade and promote good forest management, The Nature Conservancy (USAID RDM/A funded Responsible Asia Forestry and Trade Program) was requested to commission a study to develop draft guidelines on effective CoC mechanisms for timber products from both legal and/or sustainable sources. The Institute for Global Environmental Strategies was contracted to undertake this task.

Chain of custody systems for legality and sustainability share a set of basic fundamentals, but a chain of custody for sustainability has a number of additional requirements. Therefore, the Chain of Custody Guidelines contains separate guidelines for legality and sustainability. The Guidelines are to provide a regional reference for the implementation of a system for Chain of Custody of Legal Timber and Sustainable Timber.

1.2. Methodology

The method used to develop the Guidelines was:

- A review of currently available CoC systems and guidance available on the implementation methods for these systems;
- Critical review of relevant reports on CoC systems produced over the past 3 years; and
- Synthesis of the CoC procedures associated with LEI, MTCC, PEFC and state-run verification standards.

The references used to construct the Guidelines are listed at the end. The material reviewed included the standards of 3rd party forest certification schemes and the FLEGT (Forest Law Enforcement, Governance and Trade) requirements for control of the supply chain. The requirements for chain of custody specified in public sector and private sector timber procurement policies were also considered. Therefore, the Guidelines are expected to be widely accepted.

1.3. Structure of the Guidelines

The Chain of Custody Guidelines consist of an introduction, a section on definitions, a section on chain of custody fundamentals, two separate sections with the chain of custody guidelines for legal timber and sustainable timber, and the list of the references used to construct the Guidelines.

2. Definitions

Batch: set of products manufactured or traded in the specified processes during the specified time.

Chain of Custody: a system which provides a link between verified legal/certified material in a product or product line and the forest source of origin. It consists of documentation that describes the path taken by forest products from the harvesting site to the consumer, including all successive stages of processing, transformation, transportation, storage and distribution.

Certification: process of auditing of forest management or chain of custody against an agreed standard, and conducted by an accredited third party **and/or government agencies**. A forest certification scheme shall have the following components, which are documented: a forest management standard, a chain of custody standard, standard setting process, rules for product claims (e.g. labeling), accreditation and certification processes as well as dispute resolution procedures. Third party, expert organizations, **government agencies**, are accredited to undertake the certification.

Certified materials: materials that have originated from a forest management unit that has been assessed as meeting the requirements of an agreed standard for sustainable forest management.

Controlled materials: uncertified materials that satisfy the requirements of the *ASEAN Criteria and Indicators for Legality of Timber* and do not originate from controversial sources.

Controversial sources: unacceptable timber sources including protected areas and forests deemed to have high conservation value

Critical control points: all the points in the supply chain where material not managed under the chain of custody could enter or leave the system.

Documentation: Use of documents and records to ensure that no uncontrolled mixing takes place.

Forest Management Unit (FMU): a clearly defined forest area, managed to a set of explicit objectives according to a long term management plan

Forest Management Enterprise (FME): entity operating at the defined forest management unit. It can be a concessionaire, a public body, a private enterprise or a community based operation.

Identification: use of labeling, marking and other systems to identify products under the chain of custody system.

Minimum threshold: minimal percentage of certified material required in a processed product. Minimal threshold should be reflected in product claims, including labels.

Neutral material: raw material not directly from logging whose origin is considered as neutral in the calculation of the certification percentage.

Risk assessment procedure: procedure of processing company to distinguish between high risk and low risk supplies of timber and wood materials.

Segregated management: a procedure in which various raw material types of different origin are kept separate so that the origin of the raw material used in making a product is known.

Tracking system: use of product identification and documentation by the company **and/or government agencies** to allow for the tracking of the movement of wood materials and products under the chain of custody.

Urban wood: wood from trees grown in an urban setting but not being logged for commercial forestry purposes including street, parks and garden trees.

Legal material: wood materials satisfying the requirements of the *ASEAN Criteria and Indicators for Legality of Timber*.

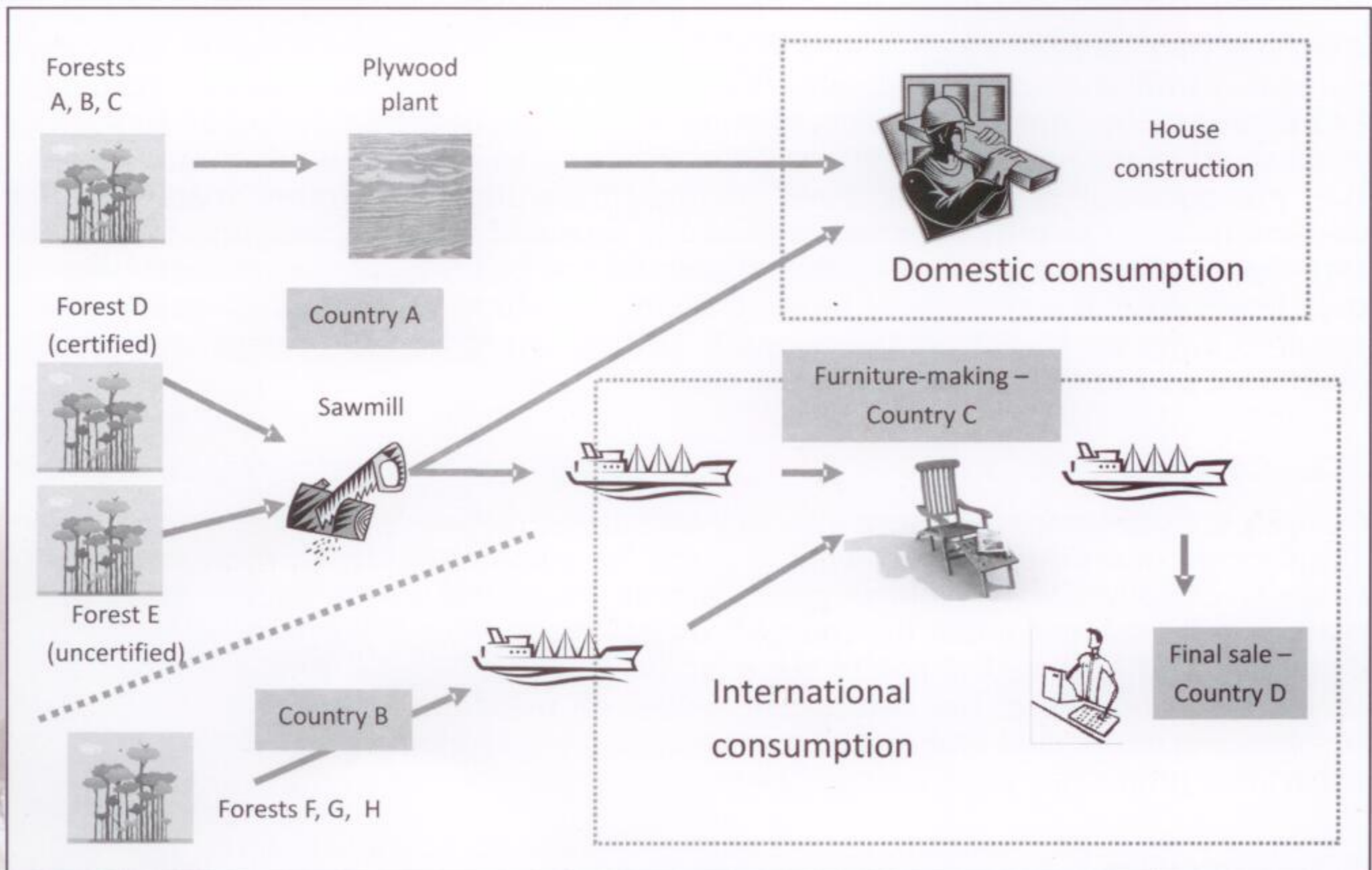
3. Chain of Custody Fundamentals

Chain of custody refers to the ownership and control aspects of the wood supply chain. A chain of custody is the custodial sequence that occurs as ownership or control of the wood supply is transferred from one custodian to another along the supply chain. It provides a verifiable system of traceability that allows timber to be tracked throughout its physical movement – the wood supply chain – from the forest from which it is sourced to the final product.

The basic purpose of chain of custody for timber products is to provide certainty that the product with a claim of legality or sustainability on it consists of material from forests that the claim pertains to. More simply, chain of custody attempts to provide the consumer or end user with confidence that the product they purchase contains wood materials from a legal forest operation and, depending on the claim, a forest that is under sustainable management.

In the forestry sector, establishing a complete chain of custody system for a single product can be immensely complex as wood materials in the final product may be from multiple sources, the production chain may be international in scale (e.g. wood materials exported from one country, processed in another and then re-exported), the timber material may undergo various transformations, and many actors may be involved in the sourcing, movement and processing of the wood materials (Figure 1).

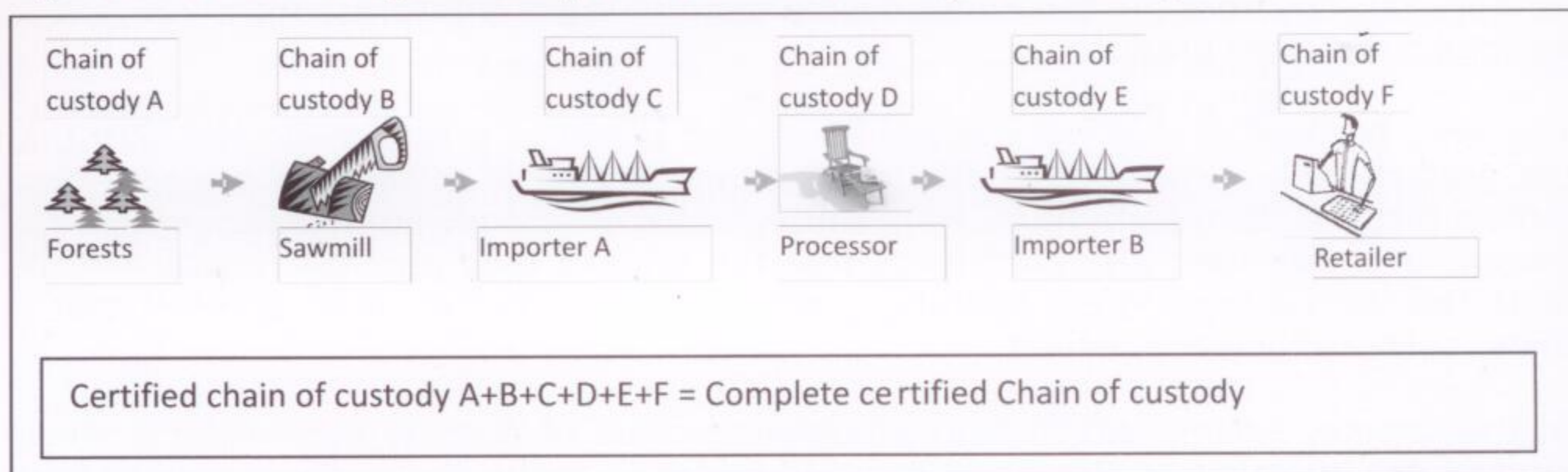
Figure 1. Complexity of wood supply chain



Controls must be in place within each organization that takes ownership of or processes the product concerned to ensure that segregated management of the product is in place and that any mixing of products is controlled. Any change of ownership in the supply chain and processing requires the establishment of chain of custody management systems and their verification at the level of each respective organization involved in the product chain. A complete certified chain of custody is therefore the aggregate of

individual chain of custody management systems established by each organization that takes custody of the product between the forest and the final consumer. It requires the establishment of chain of custody *between* enterprises that take possession of the timber product in the supply chain as well as the establishment of chain of custody *within* each processing stage (Fig. 2).

Figure 2. Constructing the complete chain of custody – an example



To construct and implement an effective chain of custody for timber requires an understanding of chain of custody building blocks and principles and how critical control points can be identified and managed. The two basic building blocks of any chain of custody system are information on quantities and controls.

3.1. Quantities

A chain of custody begins with reporting of the quantity of authorized material (authorized = legal, certified or controlled) entering the product chain. The chain of custody is established by tracking this quantity of material throughout the product chain to the final product using *product identification*, such as labels, *segregated product management* (i.e. management of the authorized material separately from other materials) and *documentation*. Quantity may be measured in terms of volumes, weights, pieces, etc. Information must be gathered within stages on the quantity of raw material entering the stage versus the quantity of product exiting the stage. Quantity information is also required between stages on the quantity sold by one processor versus the quantity purchased by the next processor in the chain.

3.2. Controls

Controls are necessary to ensure that only authorized materials enter the product chain. The concept of *critical control points* is useful for elaborating the controls required for chain of custody. Critical control points are all the points in the supply chain where material not managed under the chain of custody could enter or leave the system. Some examples of critical control points are a log pond where illegally and legally harvested timber could be mixed, the stacking of timber on pallets in a yard that handles both certified and uncertified timber, and a production line used to produce both certified and uncertified products.

3.3. Principles

Critical control points are managed through a combination of the principles of *product identification*, *segregation*, and *documentation*.

- **Identification:** the products under the chain of custody system must be clearly labeled to reduce the risk of accidental mixing (see table 3 for examples of the types of labels that can be used).

One of the simplest ways of tracing a product is through physical marking and this can be applied to raw materials such as logs, sawn timber, plywood or paper. For work-in-progress and finished products, options include different job cards or work-in-progress cards; the physical marking or labeling of part-assembled items; different colored pallets or hoppers for storage; and unique identification numbers.

Table 3: Suitability of labels for different stages of the wood product chain

Source: Dykstra, D.P., G. Kuru, R. Taylor, R. Nussbaum, W.B. Magrath and J. Story. 2002.

Label type	Tree labels	Log labels	Processed wood labels	Transport documentation
Conventional paint and chisel labels	Suitable	Suitable	Not suitable	Not suitable
Branding hammers	Not suitable	Not suitable	Not suitable	Not suitable
Conventional labels	Suitable	Suitable	Suitable	Not suitable
Nail-based labels	Suitable	Suitable	Not suitable	Not suitable
Magnetic stripe cards	Not suitable	Not suitable	Not suitable	Suitable
Smart cards	Not suitable	Not suitable	Not suitable	Suitable
RFID labels	Suitable	Suitable	Suitable	Suitable
Microtaggant tracers	Suitable	Suitable for adding security to other labels or for tracking batches of logs	Suitable for adding security to other labels or for tracking batches	Not suitable
Chemical tracer paint	Suitable	Suitable for adding security to other labels or for tracking batches of logs	Suitable for adding security to other labels or for tracking batches	Not suitable
Chemical and genetic fingerprinting	Suitable for individual tree fingerprinting	Technology not sufficiently developed	Technology not sufficiently developed	Technology not sufficiently developed

Box 1: Examples of product segregation

Within processing stages

-- Separate storage areas in a log yard for certified and uncertified timber.

Separate production lines within a mill

-- The dedication of a specific production line for a product containing certified materials to reduce the potential for accidental mixing.

Separation in time

--If one production line is to be used, organization of production in batches of material from certified or uncertified sources.

- **Segregation:** at points along the supply chain where mixing of certified and uncertified materials could occur, physical segregation reduces the risk of mixing certified and uncertified materials.
- **Documentation:** detailed documentation covering procedures, operating information and records is needed to ensure and verify that there is no uncontrolled mixing.

A wide range of documents and records can be used as part of a chain of custody system and include:

- ❖ Documents related to harvesting such as inventory, cutting block records, cutting permits, sales documents, and inspection records;
- ❖ Transport documentation such as permits, loading records, transport dockets, weighbridge information, and customs documents; and
- ❖ Process records such as goods-in records, stock control, job cards, and batch records.

It is desirable that, wherever possible, existing documents and record-keeping systems are used in developing the chain of custody system.

4. ASEAN Guideline for Chain of Custody of Legal Timber

4.1. Introduction

The Guideline for Chain of Custody of Legal Timber is intended for claims that the forest of origin is managed in compliance with the *ASEAN Criteria and Indicators for Legality of Timber*. The Guideline assumes that percentage-based claims for legality will not be made (i.e. a product cannot contain both verified legal and unverified wood material). **The objective of the Guideline is to provide a regional reference for the implementation of robust chain of custody to any organization harvesting, transporting, handling or processing forest based products at any stage from a forest to a final consumer (domestic market) or export point (export market).**

4.2. Chain of custody system

4.2.1. Within the forest

The chain of custody system begins with control of the movement of timber based on log identification and documentation within the forest and up to the point where the logs are removed from the forest. For selective logging, the chain of custody system begins with the stump or felling block of the trees that were designated for harvest. Traceability to felling coupe or cutting block or felling block is sufficient for timber plantations and forests designated for conversion.

The FME should ensure that the origin of all logs or loads is clearly *identified* and *documented* before the logs are transported.

4.2.1.1. Log identification

Log identification for selective felling requires marking/labeling each tree above and below the point of cutting (i.e. the log and tree stump). All log sections should be marked/labeled with a classification mark denoting their origin to enable traceability back to the stump or felling block. The means used for log identification should enable cross-checking that:

- The FME holds the legal right to operate and to harvest timber at the designated forest area
- The FME holds approved authorization for its harvesting operations, based on an approved cut.

4.2.1.2. Documentation

The FME should maintain detailed records that ensure the numbers and volumes of logs removed from each coupe or cut block can be cross-checked against the legal authorization to harvest timber, including the approved cut. The records should allow for cross checking of the log/load numbers with the identification and enumeration of all harvestable trees in an approved forest management plan which includes estimated harvestable timber volume.

The data should be retrievable in a timely manner to allow delivered wood to be cross checked with forest production records at any time before the wood enters a processing facility and for reconciliation with all subsequent stages in the production chain.

4.2.2. Transportation and storage

Information on the quantity, origin and destination of material being transported or stored should be of sufficient detail and in a format that makes reconciliation with prior and subsequent stages in the production chain possible. Identification, documentation

and other information for verified legal material should be maintained whenever it is transported.

When logs are transported from the forest, sufficient information to identify the origin and destination of the wood should be carried with the logs and their mixing with timber from other sources must be prevented. The information carried with the logs or log loads should include the log or log load numbers, □ the origin and destination of the logs, identity of the log carrier (truck, boat, etc) and evidence that the origin was a verified legally managed forest. Legal documents for the control of transportation of logs by truck/boat (volumes or weights), such as transportation permits and removal passes, could be used if the documentation is sufficiently reliable.

There should be adequate control in place at interim storage facilities, such as timber terminals, to ensure that material from verified legal sources is kept segregated from material from all other sources or, if mixing is allowed, that material from unverified sources is excluded from the facility. Control can be enhanced during transportation and storage by using segregation, such as packing product on pallets, in containers, or in boxes, simultaneously with identification through the labeling of the products.

All material (logs, log loads or processed timber) arriving at the point of export should be accompanied by identification and documentation necessary to confirm that it has been verified legal. The information should include the quantity and origin (i.e. last point of transformation) of the material and should be collected and recorded in a form that makes reconciliation with prior stages in the chain possible.

4.2.3. Inside processing facilities

An individual organization that takes custody of the wood materials must control the goods as they enter the organization (*purchasing and goods inwards*), while they are managed within the organization (*storage, movement and processing*), and when they leave the organization (*sales and dispatch*). Internal controls are required to ensure that no mixing of verified legal and unverified wood materials occurs while they are in the possession of the processing facility. Any organizations procuring raw material listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) appendices must follow the regulations defined by CITES and other international as well as national legislation. In addition, the organization should exclude material from unverified sources.

4.2.3.1. Approval of purchases

The processing organization should have a documented procedure for the purchase of verified legal timber that specifies the information it uses to confirm legality. Documentary evidence of wood origin and the legality of transport should include (i) independent verification that the forest of origin was harvested in accordance with the requirements of the *ASEAN Criteria and Indicators for Legality of Timber*, (ii) verification that each intermediate owner of the timber has implemented an internal tracking and control system, and (iii) evidence to show that the received timber can be matched to a production order of the supplier. A purchase order should be issued that clearly states as a requirement that the timber is verified as meeting the requirements of the *ASEAN Criteria and Indicators for Legality of Timber*.

4.2.3.2. Verification of delivered timber

At the processing organization's gate there must be adequate controls to verify that the delivered timber satisfies the legality requirement specified on the purchase order. Materials that are received should be checked against an approved purchase order and records should be kept of all the delivered timber, including log or log load numbers and volume. It should be possible to match these records to the documentation or tags issued for the logs in the forests. A procedure should be established to reject timber that does not meet the legality requirement.

4.2.3.3. Segregation

If the processing organization only handles verified legal wood materials, there are no critical control points within the processing facility. The chain of custody controls must ensure that only verified legal timber is entering the facility and that quantity of product leaving the facility can be accounted for by the quantity of product entering the facility.

If the processing organization handles both verified legal and unverified timber, a system to ensure that no mixing occurs during storage, processing and sale must be implemented. The system consists of identifying the critical control points within the processing facility and applying segregated management. The segregated management and/or product identification procedures for each critical control point should be documented.

4.2.3.4. Storage

Verified legal wood materials should be clearly labeled and/or segregated from unverified materials. A system to maintain a record or identification code of the origin of all verified legal material held in stock should be established and regular stock-takes of the verified legal and unverified materials should be undertaken. This applies to the materials that have entered the facility as well as work-in-progress and finished products

4.2.3.5. Processing

The status (verified legal or unverified) of the material should remain identifiable throughout the process. Batches of verified legal wood materials should be processed separately in time or space from unverified wood, or should be clearly marked at each stage of the processing to ensure they are not confused with or substituted by unverified wood. Production runs for products with a claim of legality should be undertaken on separate production lines (physical separation) or carried out at specific times from other production runs using the same production line (separation in time).

Because some of the wood materials may become waste during the production process, reliable conversion ratios must be established to estimate how much product could be expected from the volume of material entering the facility. There should be regular reconciliation to ensure that the quantity of legally-verified product produced does not exceed the amount which can be reasonably expected to be produced from the quantity of legally-verified raw material used.

4.2.3.6. Sales

The control of sales must include systems to ensure (i) traceability (i.e. that the product can be traced back to legal production), (ii) identification (i.e. the product must be clearly labeled as verified legal), and (iii) documentation (i.e. the accompanying documentation must specify the legal status). Sales of products that carry a claim of legality should be recorded and should include the volume of timber used. The production order numbers that make up the sale should be kept to allow reconciliation of timber volume between the timber purchased and the product sold. The sales document should state the organization's identification, quantity of delivery, the date of delivery, and that the product is verified legal.

4.2.3.7. Management system

The management system for chain of custody should be appropriate to the type, range and volume of work performed. The management system should include the following.

4.2.3.7.1. Management responsibilities

The commitment of management to implement the chain of custody should be defined and documented. A member of the senior management should be appointed as the management representative to have overall responsibility and authority for the chain of custody. Senior management should be involved in regular periodic internal review and

audits of the chain of custody.

4.2.3.7.2. Responsibilities for implementing chain of custody

Staff whose work affects the chain of custody should be identified and their responsibilities for implementing and maintaining the chain of custody should be established and documented.

4.2.3.7.3. Document system, record keeping and regular reconciliation

The processing organization should have a documented system that shows how verified legal timber is purchased, processed and sold without mixing with unverified timber. This document should identify the management representative who will be responsible for overseeing the system, identifying the critical control points and outlining the procedures for each point that ensure mixing does not occur.

Records of timber purchases, production runs and sales should be kept for a specified period (five years is common). The records should include all suppliers, the volumes of all verified legal and unverified timber purchased from each supplier, the volume and status (verified, unverified) of timber used in each production order or batch, and the volume of verified legal product purchased and sold. These records should ensure that any sold finished product can be matched to production records, which themselves can be matched to stock material of known status and origin. There should be sufficient information to trace the verified legal timber product back to the previous supplier. The records that should be maintained include purchase records, stock records, production records, sales and marketing records, records of any audits of the chain of custody system, and records of staff training on implementing the chain of custody system.

4.2.3.7.4. Internal audits

Internal audits covering all aspects of the chain of custody system should be conducted at least once a year, and corrective and preventive measures should be established, if required. The results of the internal audits should be documented, and the audit reports should be reviewed by the senior management annually.

4.2.3.7.5. Training

All staff involved in implementing the chain of custody system should be made aware of their responsibilities and be provided with the necessary training to implement the system. Records of the training provided should be properly documented and kept.

4.3. Certification body operating verification of chain of custody for legal timber

Any organization harvesting, transporting, handling or processing forest based products that intends having its chain of custody certified by a third party should be aware that for voluntary certification schemes to be considered credible, they must reflect relevant International Organization for Standardization (ISO) guidance. The assessment of chain of custody should be undertaken by a certification body operating in accordance with ISO/IEC Guide 65:1996 "General requirements for bodies operating product certification systems" or equivalent, and covering the scope of chain of custody certification. The certification body should be accredited by an accreditation body operating in accordance with ISO/IEC 17011:2004 "Conformity assessment - General requirements for accreditation bodies accrediting conformity assessment bodies" or equivalent.

5. ASEAN Guideline for Chain of Custody of Sustainable Timber

5.1. Introduction

The Guideline for Chain of Custody of Sustainable Timber is intended for claims that timber products are manufactured using material obtained from forests which are certified to be under sustainable management. **The objective of the Guideline is to provide a regional reference for the implementation of robust chain of custody to any organization harvesting, transporting, handling or processing forest based products at any stage from a sustainably managed forest to a final consumer (domestic market) or export point (export market)..** The Guideline has also been elaborated to provide guidance for the controlled mixing of certified and uncertified wood materials. Forest certification schemes commonly allow for mixing partly because of the limited volume of certified timber available to industry.

5.2. Chain of custody system

5.2.1. Within the forest

The chain of custody system begins with control of the movement of timber based on log identification and documentation within the forest and up to the point where the logs are removed from the forest. For selective logging, the chain of custody system begins with the stump of the trees that were designated for harvest. Traceability to felling coupe or cutting block or felling block is sufficient for timber plantations. By definition, a claim of sustainability cannot be made for timber from forests being converted to other land uses.

The FME shall hold a certificate that provides assurance that the FME complies with an agreed SFM certification standard and ensures that the origin of all logs or loads is clearly identified and documented before the logs are transported.

5.2.1.1. Log identification

Log identification for selective felling requires marking/labeling each tree above and below the point of cutting (i.e. the log and tree stump). All log sections should be marked/labeled with a classification mark denoting their origin to enable traceability back to the stump. The means used for log identification should enable cross-checking that:

- The FME holds the legal right to operate and to harvest timber at the designated forest area
- The FME holds approved authorization for its harvesting operations, based on an approved cut

5.2.1.2. Documentation

The FME should maintain detailed records that ensure the numbers and volumes of logs removed from each coupe or cutting block or felling block can be cross-checked against the legal authorization to harvest timber, including the approved cut. The records should allow for cross checking of the log/load numbers with the identification and enumeration of all harvestable trees in an approved forest management plan which includes estimated harvestable timber volume.

The data should be retrievable in a timely manner to allow delivered wood to be cross checked with forest production records at any time before the wood enters a processing organization and for reconciliation with all subsequent stages in the production chain.

5.2.2. Transportation and storage

Information on the quantity, origin and destination of material being transported or stored should be of sufficient detail and in a format that makes reconciliation with prior and subsequent stages in the production chain possible. Identification, documentation and other information for certified material should be maintained whenever it is transported.

When logs are transported from the forest, sufficient information to identify the origin and destination of the wood should be carried with the logs and their mixing with timber from other sources must be prevented. The information carried with the logs or log loads should include the log or log load numbers, the origin and destination of the logs, identity of the log carrier (truck, boat, etc) and evidence that the origin was a certified forest. Legal documents for the control of transportation of logs by truck/boat (volumes or weights), such as transportation permits and removal passes, could be used if the documentation is sufficiently reliable.

There should be adequate control in place at interim storage facilities, such as timber terminals, to ensure that material from certified sources is kept segregated from material from all other sources. Control can be enhanced during transportation and storage by using segregation, such as packing product on pallets, in containers, or in boxes, simultaneously with identification through labeling products.

All material (logs, log loads or processed timber) arriving at the point of export should be accompanied by identification and documentation necessary to confirm that it is certified. The information should include the quantity and origin (i.e. last point of transformation) of the material and should be collected and recorded in a form that makes reconciliation with prior stages in the chain possible.

5.2.3. Inside processing facilities

An individual organization that takes custody of the wood material must control the goods as they enter the organization (*purchasing and goods inwards*), while they are managed within the organization (*storage, movement and processing*), and when they leave the organization (*sales and dispatch*). Critical control points within the processing organization must be identified and managed to ensure that no uncontrolled mixing of certified and uncertified materials occurs. In addition, the organization should exclude material from unverified sources.

5.2.3.1. Approval of purchases

The processing organization should have a documented procedure for the purchase of sustainable timber that specifies the information it uses to confirm sustainability. Documentary evidence of wood origin and the legality of transport should include: (i) independent verification that the forest of origin is under sustainable management, (ii) verification that each intermediate owner of the timber has implemented an internal tracking and control system, and (iii) evidence to show that the received timber can be matched to a production order of the supplier. A purchase order should be issued that clearly states as a requirement that the timber is certified.

5.2.3.2. Verification of delivered timber

At the processing organization's gate there must be adequate controls to ensure that all wood accepted into the facility is from certified or verified legal sources. Logs that are received should be checked against an approved purchase order, and for certified logs, to ensure that they are verified as originating from a forest under sustainable management. Records should be kept of all the delivered timber, including log or log load numbers and volume. It should be possible to match these records to the documentation or tags issued for the logs in the forests. A procedure should be established to reject timber that does not meet the sustainability or legality requirement.

If forest-based products are procured after processing for further processing and if the supplier uses a percentage-based method, the percentage of certified raw material in the goods must be known.

5.2.3.3. Storage

Certified materials should be clearly labeled and/or segregated from other materials. A system to maintain a record or identification code of the origin of all certified materials held in stock should be established and regular stock-takes of the certified and uncertified materials should be undertaken. This applies to the materials that have entered the organization as well as work-in-progress and finished products.

5.2.3.4. Processing

There are two optional approaches for chain of custody: (i) physical separation method, and (ii) percentage-based method.

5.2.3.4.1. Physical separation method

The most straightforward way to comply with chain of custody requirements is to purchase certified material, keep it separate throughout all stages of processing, and create a finished product that is 100% certified. The status of the material should remain identifiable throughout the process and this can be achieved by using identification tags, color coding and/or unique identification numbers/marks. If marking is not possible, another method must be developed to distinguish certified and uncertified products. Batches of certified materials should be processed separately in time or space from other materials, or, should be clearly marked at each stage of the processing to ensure they are not confused with or substituted by other materials. Production runs for certified products should be undertaken on separate production lines (physical separation) or carried out at specific times from other production runs using the same production line (separation in time).

Because some of the wood materials may become waste during the production process, reliable conversion ratios must be established to estimate how much product could be expected from the volume of material entering the facility. There should be regular reconciliation to ensure that the quantity of product produced that carries the sustainability claim does not exceed the amount which can be reasonably expected to be produced from the quantity of raw material used.

5.2.3.4.2. Percentage-based method

Voluntary chain of custody certification schemes usually allow for the controlled mixing of certified and uncertified materials, partly because of the low volume of certified timber available in many tropical countries. Chain of custody schemes may thus include both 100%-certified and percentage-based claims.

Controversial sources

Controls should be used for percentage-based claims to ensure that the uncertified timber is a controlled material, i.e. is from legal sources and is not from controversial sources.

A risk assessment procedure should be established to distinguish between high and low risk supplies, and the procedure should provide a methodology for evaluating the risk of "high risk" supplies. A self-declaration by the suppliers that the raw material does not originate from a controversial source should be required. If the risk that raw material originates from controversial sources is high, a sampling based program of second or third party verification of the supplier's self-declarations should be established.

Any organizations procuring raw material listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) appendices must follow the regulations defined by CITES and other international as well as national legislation.

Minimum thresholds

A minimum threshold for the percentage of certified material required in the processed product should be set. Different forest certification schemes set different thresholds and buyers may also specify minimum thresholds in their procurement policies.

Categorizing materials

To calculate percentages can be complicated as composite products such as chipboard, MDF (medium density fiberboard), etc. may contain a variety of wood materials including virgin fiber, recycled material and waste. Three categories of materials are commonly recognized: certified material; uncertified material (excluding neutral material); and neutral material. Neutral material is material not directly derived from logging such as recycled fiber, waste wood, agricultural fibers (bagasse, rice stalks, etc.), oil palm fiber, coconut fiber and urban wood. The calculation of percentages is based on the quantities of certified and uncertified materials, and materials from neutral sources are excluded from the equation. The uncertified portion should comprise controlled material, i.e. legal material which comply with the requirements of the *ASEAN Criteria and Indicators for Legality of Timber*, and are not from controversial sources.

Methods for controlled mixing

The two methods for controlled mixing are: (i) percentage in individual products, and (ii) percentage in individual product lines or processes. In all cases, control of certified and uncertified materials is required to the point where the raw materials enter the production process.

The formula for calculating certification percentage is:

$$P_c [\%] = \frac{V_c \times 100}{(V_c + V_o)}$$

- P_c certification percentage
- V_c volume of certified raw material
- V_o volume of other raw material

Calculations must be based on a single measurement unit. If this requires conversion, credible conversion ratios must be used.

Individual product-based percentage

Under this approach the product claim specifies the minimum percentage of certified material used in the final product, which can be calculated either by weight or by volume. Controls must be in place to allow precise calculation of the percentage of certified material in the final product.

Example: cabinet

70% of the cabinet is MDF; 30% of the cabinet is other wood materials; the only certified component of the cabinet is 50% of the MDF: therefore, the total certified content of the cabinet is 50% of 70% (MDF) = 35%.

Product line or process-based percentage

For many products containing wood materials it is impossible to control or calculate the percentage of certified material used in individual products. In such cases, control must be established at the level of the product line or process.

If the certification scheme or the product label or claim specifies a minimum proportion of certified material that must be in the product line, then controls must be adequate to ensure that this is delivered. When the production is on an individual batch basis, the percentage of certified material is calculated according to the input into the batch.

The calculation for continuous processes has to be based on either a nominal batch or a rolling average approach.

Nominal batches

A nominal batch period must be set (e.g. a week or a month, or a maximum period could be set). The calculation of the percentage of certified and uncertified material is made at the end of each nominal batch period. When the percentage of certified material used meets the requirements of the certification scheme, then all of the products made during the nominal batch period can be considered certified.

For example, if the nominal batch length is one week and the proportion of certified material required is 50%, then half the raw material used during the week must be from a certified source.

Rolling averages for continuous processes

The batch period may be calculated as a rolling average in order to reduce the extent to which the proportion of certified and uncertified material in a product fluctuates. In a rolling average approach, the average percentages of certified and uncertified raw materials used are calculated regularly at a defined period that is shorter than the nominal batch period. For a rolling average approach, the input of raw material must be controlled to ensure that the rolling average of certified material never drops below the minimum allowed.

Transfer of the calculated percentage to the outputs

There are two methods for transferring the calculated percentage to the outputs: (i) average percentage method, and (ii) volume credit method (also referred to as percentage in – percentage out).

Average percentage method

All the products within the production batch are labeled as certified according to the minimum threshold (e.g. contains a minimum of 70% certified wood materials).

Volume credit method

Only a proportion of the outputs are recognized as 100% certified based on the proportion of certified materials input. For example, if the certification percentage for a production batch producing 100 tonnes of product is 50%, then 50 tonnes of the product can be sold as 100% certified.

5.2.3.5. Claims and labeling

A further control element of a certified chain of custody is claims and labeling. Claims must be accurate and not misleading to be credible. ISO/IEC 14020 "Environmental labels and declarations: General principles" provides guidance on environmental claims. Additionally, for percentage-based production, labels and claims must reflect the fact that only a percentage of the wood material in the product is certified.

5.2.3.6. Sales

The control of sales must include systems to ensure: (i) traceability (i.e. that the product can be traced back to certified production), (ii) identification (i.e. the product must be clearly labeled as certified), and (iii) documentation (i.e. the accompanying documentation must specify the certification status). The processing facility should provide the buyer with a document verifying compliance with the chain of custody requirements. The sales document should state the organization's identification, quantity of delivery, the date of delivery, and the status of the product (i.e. percentage of certified content). The production order numbers that make up the sale should be kept to allow reconciliation of timber volume between the timber purchased and the product sold.

5.2.3.7. Management system

The management system for chain of custody should be appropriate to the type, range and volume of work performed. The management system should include the following.

5.2.3.7.1. Management responsibilities

The commitment of management to implement the chain of custody should be defined and documented. A member of the senior management should be appointed as the management representative to have overall responsibility and authority for the chain of custody. Senior management should be involved in regular periodic internal review and audits of the chain of custody.

5.2.3.7.2. Responsibilities for implementing chain of custody

Staff whose work affects the chain of custody should be identified and their responsibilities for implementing and maintaining the chain of custody should be established and documented.

5.2.3.7.3. Document system, record keeping and regular reconciliation

The processing organization should have a documented system that shows how certified timber is purchased, processed and sold without mixing with uncertified timber, or with controlled mixing. This document should identify the management representative who will be responsible for overseeing the system, identifying the critical control points, and outlining the procedures for ensuring uncontrolled mixing does not occur at each point.

Records of timber purchases, production runs and sales should be kept for a specified period (five years is common). The records should include all suppliers, the volumes of certified and uncertified timber purchased from each supplier, the volume and status (certified, uncertified, neutral) of timber used in each production order or batch, and the volume of certified product purchased and sold. These records should ensure that any sold finished product can be matched to production records, which themselves can be matched to stock material of known status and origin. They should be sufficient to trace the certified timber product back to the previous supplier. The records that should be maintained include purchase records, stock records, production records, sales and marketing records, records of any audits of the chain of custody system, and records of staff training on implementing the chain of custody system.

5.2.3.7.4. Internal audits

Internal audits covering all aspects of the chain of custody system should be conducted at least once a year, and corrective and preventive measures should be established, if required. The results of the internal audits should be documented, and the audit reports should be reviewed by the senior management annually.

5.2.3.7.5. Training

All staff involved in implementing the chain of custody system should be made aware of their responsibilities and be provided with the necessary training to implement the system. Records of the training provided should be properly documented and kept.

5.3. Certification body operating certification of chain of custody for sustainable timber

Any organization harvesting, transporting, handling or processing forest based products that intends having its chain of custody certified by a third party should be aware that for voluntary certification schemes to be considered credible, they must reflect relevant International Organization for Standardization (ISO) guidance. The assessment of chain of custody should be undertaken by a certification body operating in accordance with ISO/IEC Guide 65:1996 "General requirements for bodies operating product certification systems" or equivalent, and covering the scope of chain of custody certification. The certification body should be accredited by an accreditation body operating in accordance

with ISO/IEC 17011:2004 "Conformity assessment - General requirements for accreditation bodies accrediting conformity assessment bodies" or equivalent.



6. References

- ASEAN Guidelines on Phased-approaches to Forest Certification (PACT), Version April 2008
- CPET (Central Point of Expertise on Timber). 2006. *2006 Review of forest certification schemes. Submitted Comments and responses on the Programme for the Endorsement of Forest Certification schemes.*
- .2008. Appendix 1d. Review of the Programme for the Endorsement of Forest Certification schemes.
- Down to Earth. June 2001. *Certification in Indonesia: A briefing.* (<http://dte.gn.apc.org/Ccert.htm>, 1/6/2009).
- Dykstra, D.P., G. Kuru, R. Taylor, R. Nussbaum, W.B. Magrath and J. Story. 2002. *Technologies for wood tracking: Verifying and monitoring the chain of custody and legal compliance in the timber industry.* Environment and Social Development, East Asia and Pacific Region Discussion Paper, World Bank.
(<http://www.worldwildlife.org/what/globalmarkets/forests/WWFBinaryitem7383.pdf>, 15/01/2009)
- European Commission. 2005. FLEGT Briefing Note Number 9: A timber legality assurance system.
- European Commission. 2007. FLEGT Briefing Note Number 9: Control of the supply chain: Wood tracing systems and chain of custody.
- FSC. 2004. Standard for Chain of Custody Certification. FSC-STD-40-004 (Version 2-0) EN, 2004
- Global Forestry Services. 2005. Review of programmes on traceability of timber material: Draft report for the work plan on legality, Asia Forest Partnership.
- Hinrichs, A. and A. Prasetyo. 2007. *Forest certification credibility assessment in Indonesia: Applying the forest certification assessment guide on national level.*
(http://lei.or.id/indonesia/files/download_Guide_a9c8b6.pdf, 30/01/09)
- Indonesia Standardization Body (BSN) Guide 49. 1997. General Requirements for Environmental Management System Certification Body.
- Indonesia Timber Legality Verification Standard. 22 January 2007 Version.
- ISO/IEC Guide 59:1994. Code of good practice for standardization.
- ISO Guide 61:1996. General requirements for assessment and accreditation of certification/registration bodies.
- ISO Guide 62:1996. General requirements for bodies operating assessment and certification/registration of quality systems.
- ISO/IEC Guide 65:1996. (EN 45 011:1998). General requirements for bodies operating product certification systems.

- ISO 14001:1996. Environmental management systems — Specification with guidance for use.
- ISO 9000:2000. Quality management systems — Fundamentals and vocabulary.
- ISO 9001:2000. Quality management systems — Requirements.
- ISO 14020:2000. Environmental labels and declarations — General principles.
- ISO 19011:2002. Guidelines for quality and/or environmental management systems auditing.
- ISO/IEC 17011:2004. Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies.
- ISO/IEC Guide 2:2004. Standardization and related activities — General vocabulary.
- ISO/IEC 17021:2006 . Conformity assessment — Requirements for bodies providing audit and certification of management systems.
- LEI Guide 88: Chain of custody certification system.
- LEI Guideline 88-01: General requirements for chain of custody certification body.
- LEI Guideline 88-02: Chain of custody certification field assessor general requirements.
- LEI Guideline 88-03: Chain of custody certification expert panel general requirements.
- LEI Guideline 88-11: Training guidelines for field assessors of chain of custody.
- LEI Guideline 88-12: Training guidelines for expert panels of chain of custody.
- LEI Guideline 88-13: Training guidelines for trainers of chain of custody.
- LEI Guideline 88-21: Chain of custody certification field assessors guideline.....
- LEI Guideline 88-22: Chain of custody certification field assessors report arrangement guideline.
- LEI Guideline 88-23: Chain of custody certification screening process guide.
- LEI Guideline 88-24: Chain of custody certification decision making guide for expert panel.
- LEI Guideline 88-25: Chain of custody certification recommendation guide.
- LEI Guideline 88-26: Guide for surveillance and certificate extension implementation in chain of custody certification system.
- MTCC 2004: Requirements for Chain-of-Custody Certification (RCOC).
- MTCC 2006: Assessment Procedures in using the Requirements for Chain-of-Custody Certification (RCOC).
- Muhtaman, D.R. and F.A. Prasetyo. 2006. Forest certification in Indonesia. In *Confronting Sustainability: Forest Certification in Developing and Transitioning Countries* Edited by B. Cashore, F. Gale, E. Meidinger and D. Newsom. Yale School of Forestry and Environmental Studies.

- Ngadiono and D. Asycarya. Undated. *Forestry verification systems in Indonesia: Summary of Bahasa Indonesia technical report*. VERIFOR.
- Nussbaum, R. and M. Simula. 2005. *The forest certification handbook*. 2nd Edition. London, Sterling VA: Earthscan.
- PEFC Council. 2005. Technical Document Annex 4: Chain of Custody of Forest Based Products – Requirements, 17 June 2005.
- PEFC Council. 2006. Technical Document Annex 1: PEFC Terms and Definitions, 27 October 2006.
- PEFC Council. 2007. Technical Document Annex 6: Certification and Accreditation Procedures, 5 October 2007.
- Revised ITTO Criteria and Indicators for the Sustainable Management of Tropical Timbers, including Reporting Format. ITTO Policy Development Series No. 15, 2005.
- Shahwahid H.O., Mohd. 2006. Forest certification in Malaysia. In *Confronting Sustainability: Forest Certification in Developing and Transitioning Countries* Edited by B. Cashore, F. Gale, E. Meidinger and D. Newsom. Yale School of Forestry and Environmental Studies.
- Telfer, B. 14 February 2007. *Forest and log export monitoring system in Papua New Guinea*. SGS PNG Limited.
- TTAP Requirements for Chain of Custody: Requirements for the control of TTAP supply chains, March 07.
- Wells, A., Ngadiono and D. Asycarya. 2006. *Case study summary 9 – Indonesia*. VERIFOR.
- Wells, A., T.H. Chiew and C.H. Keong. Feb. 2008. *Systems for verification of legality in the forest sector, Malaysia: Domestic timber production and timber imports*. Country Case Study 8. VERIFOR.
- Wong, M.C. 2004. *A report on the Malaysian Timber Certification Scheme*. IDEAL.



as