

Tropical Forest Foundation Standard for Reduced Impact Logging (TFF RIL Standard)

TFF-STD-RIL-2006

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The ***Tropical Forest Foundation*** is a non-profit, educational institution dedicated to the conservation of tropical forests through sustainable forestry. TFF has become widely recognized for the establishment of demonstration models and training schools to teach Reduced Impact Logging and other practices that encourage Sustainable Forest Management.

The Foundation's Board of Directors includes representatives from industry, government, science, academia, and conservation organizations. Each member has an interest in seeing tropical forests renewed and sustained.

TFF Standard for Reduced Impact Logging (TFF-STD-RIL-2006) was adopted by the TFF Board of Directors on October 23, 2006 as a living document, subject to periodic review and revision so that it appropriately addresses evolving circumstances.

Please send any comments or suggestions regarding this standard to:

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TFF Standard for Reduced Impact Logging

1) Introduction

1.1) Purpose of this document

Linking sustainable forest management with forest products and informing those in the market place about sound management and harvesting practices have become increasingly important to producers and consumers alike. One avenue to this linkage, forest certification, has been recognized as a slow process, particularly in the tropical regions. There is an apparent need for alternative approaches that support the gradual implementation of sound practices. Step-wise or phased approaches to certification seem to be practical and obtainable for local producers. They can provide time for removing technical barriers to achieving full certification while enabling market access. Various certification systems are now considering the formal adoption of phased approaches to certification. (refer to chapter 1.4)

Certification systems provide a structured framework for a phased approach defined by milestones to be reached within a certain period of time. One of these milestones could be the application of the full set of forest harvesting elements that constitute Reduced Impact Logging (RIL). The application of proper and complete RIL procedures and technologies is a key component of sustainable forest management.

A universally accepted definition of RIL and its constituting elements i.e. a RIL standard as well as a transparent system for verifying compliance with this standard, does not yet exist.

This document introduces a definition of RIL and its constituting elements i.e. TFF RIL Standard for natural tropical forests (Section 2 of this document) and a conformity verification procedure (Annex II). A wide range of professionals have contributed to the development of the Standard. The TFF RIL Standard was approved and adopted by the Tropical Forest Foundation Board of Directors on October 23, 2006. It is regarded as a "living document", subject to periodic review and revision in order to appropriately address evolving circumstances. Although the TFF RIL Standard may become widely recognized, the support base could be further strengthened by a more formal process of international consultation. The TFF RIL Standard could serve as a basis for the development and adoption of an internationally recognized and adopted RIL standard.

The assessment of operations against the TFF RIL Standard may substitute the assessment of various existing criteria and indicators of SFM standards that have been adopted by various certification systems and conversely, TFF may recognize various criteria and indicators of SFM standards as compliant with components or even the entire RIL standard.

With a view of increasing acceptance of phased approaches to SFM by certification systems, TFF has and will continue to develop Forest-Market Linking (FML) Programs that are specific to tropical regions taking into account regional variations in best management practices and the best available scientific information pertaining to sustainable forestry. An example of the FML Program specific to Indonesia may be viewed at <http://www.tff-indonesia.org/>.

1.2) Introduction to RIL

1.2.1 Background

Conventional logging of natural forests has a high negative impact on the social and natural environments. Inappropriate logging operations cause:

- negative impacts on forest dependent peoples' livelihoods;
- reduced water retention capacity and increased erosion;
- pollution of water bodies;
- unacceptably high damage to the residual forest stand and wildlife habitat;
- damage to wildlife;
- high accident rates of forest operators; and
- low wood recovery due to low utilization and poor harvesting techniques.

Moreover, conventional logging does not ensure sustainable timber yields because it damages a disproportionately high percentage of future crop trees and emerging regeneration. Conventional logging is characterized by inadequate planning of logging roads, landings and skid trails, insufficient care for the residual stand, poor felling techniques and use of inappropriate and often outdated equipment.

In recent decades, it has been recognized that proper planning of harvesting operations and application of appropriate technologies can considerably reduce the damage caused by conventional logging methods in tropical regions. Improved logging procedures and techniques are collectively referred to as Reduced Impact Logging (RIL).

The establishment of harvesting goals and limits according to principles of sustainable forest management is an over-arching requirement for RIL. The limits should be based on allowable cut calculations for the area to be harvested and environmental constraints in individual compartments (or blocks) of the harvesting area.

In 1996, the Food and Agriculture Organization of the United Nations (FAO) published the Model Code of Forest Harvesting Practice. This Code of Practice provides a thorough basis for a universal approach, which needs to be fine-tuned for regional¹ and local applications. Moving from conventional logging to RIL requires comprehensive training of managers, supervisors and workers at all levels of a forest operation, as well as operational changes on the ground. Most importantly, it requires commitment to sustainable forest management by politicians, land owners and managers of logging companies.

1.2.2 Financial implications of RIL

The application of RIL depends to a considerable extent on its cost-effectiveness. The conclusions of several studies that have compared the costs of conventional logging and RIL are ambiguous. Some studies have shown RIL practices to be less costly than conventional practices. Other studies have indicated the opposite. The results of cost-benefit analysis are very location-specific and cannot be generalized. Nevertheless, some common conclusions can be drawn. Inventory and planning costs are higher for RIL. On the other hand, operating costs are generally lower as a result of proper planning and reduced equipment wear. Wood recovery is usually higher with RIL, because of better procedures for locating and marking commercial trees within the forest, reduced felling damage and a reduced incidence of leaving felled logs in the forest.²

1.2.3 Definition and application of RIL

The application of RIL pursues two goals. One is to harvest marketable trees as economically and safely as possible to support economic development and local livelihoods in developing countries. The other is to achieve desirable characteristics of the residual forest as they derive from ecological and, to a certain extent, social requirements. Examples of the latter are to maintain the possibility of harvesting non-timber forest products, the continued availability of unpolluted water and a carbon reservoir to ameliorate global climate change.

RIL is defined as timber harvesting technologies and practices with the following main objectives:

- minimize impact on the environment (including wildlife) and related social aspects;
- minimize damage to potential future crop trees (including regeneration);
- provide safe working conditions; and
- improve timber utilization and recovery in the forest.

This definition provides a basis for identifying RIL requirements. RIL comprises the entire spectrum of forest harvesting operations from pre-harvest inventory, selection of merchantable trees and design of infrastructure, to felling, extraction and hauling of logs, and finally post-harvest operations and assessments. Careful selection of trees to be harvested is

¹ Codes of Practice for Forest Harvesting have also been prepared for Asia and the Pacific (FAO, 1999) and the tropical moist forests of West and Central Africa (FAO, 2005).

² A practical tool to calculate logging costs and to compare costs of different technologies is provided by RILSIM. RILSIM is a RIL simulation programme with a users guide.² The free software supports financial analysis of RIL systems. The RILSIM 2.0 CD and User's Guide are available at <http://www.blueoxforestry.com/RILSIM/>.

a first step toward ensuring that conservation principles and future harvesting cycles are appropriately considered.

The application of RIL does not comprehensively consider social issues such as land and customary rights. RIL must be seen as one important step toward responsible or sustainable forest management. Additional steps are required, however, to produce timber from sustainably managed forests as defined by forest certification systems.

RIL operates within policy and legislative frameworks and technical forest management considerations regarding sustained yield and environmental and social considerations. Forest management planning, including sustained yield planning, dictates what should be done. RIL defines how it will be done.

1.3) RIL and the Tropical Forest Foundation (TFF)

1.3.1 The Tropical Forest Foundation

The Tropical Forest Foundation is a non-profit, educational institution dedicated to the conservation of tropical forests through sustainable forest management. TFF has promoted the application of RIL since its establishment in 1990. TFF's mission is to promote sustainable forest management by demonstrating and teaching proper management practices. TFF has developed, gradually expanded and improved training programs for a variety of target groups in all major tropical forest regions. These programs are supported by a number of donors.

With the presentation of the RIL standard, TFF has established a sound basis for its training programs and for the verification of proper application of RIL in practice.

1.3.2 Concept of RIL Verified®

Forest managers may wish their operations to be assessed against the TFF RIL Standard. This can be done:

- 1) within the framework of SFM certification systems; or
- 2) outside the framework of SFM certification systems, under the authority of TFF.

In both cases, the actual verification of compliance with the TFF RIL Standard requires an assessment by an independent auditor. Verification within the framework of a forest certification system would fit into the phased approach to forest certification (elaborated in section 1.4 of this document). Verification outside a forest certification system is executed under TFF's authority. Annex II to this document contains procedures and conditions as set by TFF for the verification of compliance with the TFF RIL Standard. Compliance with the TFF RIL Standard will be recognized through the issuance of a RIL Verified® Mark.

To bring forest managers and operations to a level where they can meet the TFF RIL Standard, TFF will continue to organize RIL training programs.

1.3.3 TFF RIL Forest-Market Linking Program

With a view of adopting phased approaches towards SFM by forest certification systems (see 1.4.2), TFF has developed the RIL Forest-Market Linking Program, and the first implementation is in Indonesia. The program has two pillars. Forest management entity representatives are being trained in the application of RIL. At the same time, they are being linked to overseas buyers. The program is known as the TFF RIL Forest-Market Linking (FML) Program. Progress toward full compliance with the TFF RIL Standard is being controlled and verified. Forest management units (FMUs) that produce exclusively third-party verified legal origin timber and fulfill minimum requirements for the establishment of a chain-of-custody (CoC) system are eligible for the program. Annex III to this document contains procedures and conditions as set by TFF for participating in the FML Program.

Communicating formal participation in the program is business to business. Upon execution of an agreement with TFF, including a user fee, shipments of timber and/or timber products that are being sourced from FMUs participating in the TFF RIL FML Program may show evidence of participation through an official label affixed to shipping containers or batches of timber and/or timber products, and/or through statements on the accompanying documents. In addition, promotion material and external statements may refer to the participation in the TFF RIL FML Program. The label is referred to as TFF Legal Verified label.

1.4) RIL Verified® in the Context of Legality and SFM

1.4.1 Legal Origin and Transition Wood

Although RIL addresses a wide range of forest management issues, it does not cover all aspects required for sustainable forest management as defined by current forest certification systems. Compliance with the TFF RIL Standard is, therefore, not a goal in itself but a step, and indeed a very important step, towards sustainable forest management.

To facilitate certification, so-called step-wise or phased approaches have emerged. Most common is an approach based on three classes:

1. legally sourced wood
2. legally sourced wood from a site where a program to achieve sustainability is being implemented (transition wood) and
3. legally sourced wood from a forest that has been certified as sustainably managed (SFM certificate).

Verified timber in each of the three classes may have its own place in the market.³ The legality of an operation is a prerequisite for any forest operation entity. TFF recognizes two different degrees of legality within the context of this step-wise approach (refer to section 1.6).

1.4.2. Phased Approach towards SFM

A phased approach should be understood as an arrangement for independently verifying the progress made by a manager/owner of a forest management unit (FMU) toward achieving full compliance with a certification standard while allowing communication on the progress made and thereby facilitating access to potential markets.⁴ A phased approach can provide time for removing technical barriers to achieving full certification while allowing the realization of market benefits. Furthermore, it provides a structured framework defined by milestones to be reached within a certain period of time.

One of these milestones could be compliance with the TFF RIL Standard. The assessment of operations against the TFF RIL Standard may substitute the assessment of various existing criteria and indicators for achieving SFM. The certification system could make use of the path of progress toward full compliance with the TFF RIL Standard (see 1.3.3).

1.5) Ownership of the TFF RIL Standard, Legal Verified, and RIL Verified® Mark

Forest certification systems are allowed to use the TFF Legal Verified and TFF RIL Standard per agreement with TFF.

The Tropical Forest Foundation is the owner of the TFF RIL Standard and of the names RIL Verified® and Legal Verified® as well as the associated marks. The RIL Verified® and Legal Verified names and marks have been registered in the United States of America. TFF may enter into an agreement with any forest certification system to allow the use of the TFF RIL Standard, RIL Verified® and/or the Legal Verified names or marks. The agreement will stipulate the conditions for granting the mark, rules for the use of the name and mark, and measures to preclude improper use.

TFF has developed a verification system independently from any certification system (Annex II). The TFF verification system is transparent and publicly available. It contains procedures for application, assessment and decision making, quality requirements for auditing teams, procedures for monitoring and withdrawal and for dealing with complaints and appeals.

The RIL Verified® name and mark and TFF Legal Verified label may only be used by parties in the chain-of-custody (CoC) verification that comply with the TFF CoC requirements as formulated in section 4 of this document (TFF RIL Standard). TFF has developed rules for the use and protection of the RIL Verified® name, mark and TFF Legal Verified label to avoid

³ "Introduction to the legal timber issue", ISAFOR September 2004.

⁴ ITTO International Workshop on Phased Approaches to Certification, 19-21 April 2005, Berne, Switzerland.

improper use. The rules for the RIL Verified® name and mark are contained in Annex II, section 1) “Rules for the use of the term and/or mark RIL Verified®.” The rules for the use of the TFF Legal Verified Label and for reference in the FML Program are contained in Annex III, section 4.

1.6) Requirements for Legality Verification

The dual requirements of verification of legality and the establishment of a credible CoC system are the preconditions for participation in the RIL Verified® system. TFF has adopted a two-tiered definition of legality to match the step-wise approach of promoting certification of sustainable forest management (refer to Section 3 of this document).

1. The “**Legal Verified**” label uses a definition of legality commonly referred to as **legal origin** and includes the concept of **legal right to harvest**. This is the entry level in the TFF Forest-Market Linking program.
2. The “**RIL Verified**” mark uses a more inclusive definition of legality commonly referred to as **legal compliance**. This mark goes well beyond the concept of legal origin wood and reflects substantial **legal compliance** with environmental and social legislation and regulations relevant forest management. The RIL Verified® mark can be awarded to forest management units who have been verified through independent audit as complying with the TFF RIL Standard and the TFF requirements as to Legal Compliance.

National legislation, including ratified international Agreements and Treaties, is the basis for compliance requirements. Elaborated legality standards are, by definition, country specific. They reflect the regulatory requirements of national forest management jurisdictions. The TFF standards for Legal Origin and Legal Compliance (refer to section 3 of this document) establish the TFF requirements for the scope of legislation that a legality standard or SFM standard should cover in either of these cases.

Country specific standards defining legality, which are being used by independent certification bodies and have been accepted by TFF may be obtained directly from the TFF regional program office.

1.7) Requirements for Chain-of-Custody (CoC) Verification

Timber that receives the RIL Verified® mark or the Legal verified label must be traced and monitored from the felling site through all stages of transport and processing up to its final destination. Independent verification of the legality of the timber together with the CoC verification is essential to the credibility of timber traded under the RIL Verified® mark or under the Legal Verified label.

TFF has formulated minimum requirements for the establishment of a CoC verification system, including the entity that holds the harvesting mark and all other entities that trade, store and process RIL Verified® and Legal Verified products. These CoC verification requirements are presented in section 4 of this document. CoC audits must be performed by an internationally recognized auditor using evaluation standards that meet (or exceed) the minimum requirements formulated by TFF.

The CoC verification system must incorporate widely accepted principles of marking, documentation, and administration. All parties in the CoC verification must have systems in place which identify, document and separate, administratively, the flow of logs and derived products from a RIL Verified® or Legal Verified source from non-verified logs and products.

Basically two systems are distinguished; the Physical Separation System and the Inventory Control and Accounting System. TFF allows both systems in its RIL Verified system.

1) Physical distinction System

This system requires partners in the CoC to distinguish physically and administratively RIL Verified or Legal Verified wood from non-RIL Verified wood. This means that timber sold as RIL Verified respectively as Legal Verified originates 100% from RIL Verified respectively Legal Verified forest operations

2) Inventory Control and Accounting System

To a certain degree, products or bundles of RIL Verified[®] timber may be mixed or assembled with other timber of verified legal origin. TFF will accept percentage based methods for establishing RIL Verified[®] output volumes.

2.1.) *Percentage based woodflows*

2.1.a) *Minimum average percentage system*

In the production lane RIL Verified wood may be mixed exclusively with other timber from verified legal origin. If bundles contain RIL Verified[®] timber in combination with other timber of verified legal origin, at least 70% (by volume) must be RIL Verified[®] timber in order to refer to the bundles as RIL Verified[®].

In practice this may mean that a bundle of RIL Verified timber contains between 70% and 100% RIL Verified wood while the rest comes from other verified legal origin.

Timber from a RIL Verified[®] harvesting operation mixed with timber sourced from non-verified legal origin will not be recognized as RIL Verified[®].

2.1.b) *Input/output credit system*

This system means that when a known percentage of RIL Verified wood enters the yard or processing unit, the same percentage of the output after processing or handling is considered to be RIL Verified. Condition for applying this system is that all the wood that enters the processing or handling lines comes from verified legal origin. In practice this means that the output sold as RIL Verified may not be the RIL Verified wood that has entered the process or handling line. The labeled RIL Verified output is at least from a verified legal origin and does not exceed the percentage of RIL Verified input.

2.2) *Assembled wood*

RIL Verified wood may be assembled with non RIL Verified wood products such as finger jointed wood, plywood, MDF, particle board. In those cases the requirements for using the RIL Verified mark are :

- Assembled wood must contain at least 70% RIL Verified wood with the exception of
- Products with a tropical wood facing such as elements for flooring and paneling. For these products the surface must be 100% RIL Verified wood. The rest of the wood material must come from verified legal origin.

2) TFF RIL Standard, Criteria & Indicators

This TFF RIL Standard has been designed to serve as a quality reference for timber harvesting procedures and techniques in natural tropical forests. The Standard comprises one principle and five aspects that will be assessed against selected criteria and indicators. The five aspects are:

1. RIL elements
2. Outcome requirements for the residual forest stand
3. Occupational health and safety
4. Components of the management system
5. Professional level of personnel

Any tropical forest operation can use the TFF RIL Standard to assess and improve its harvesting operations. Independent third parties (e.g. auditors) may, upon request, verify compliance with the TFF RIL Standard, based on a detailed checklist. Such a checklist is part of all audits. It is typically tailored to location-specific circumstances because ecology, topography, silviculture, land ownership, policy and legislative frameworks, and numerous other variables, create unique situations requiring locally or regionally specific norms and thresholds for auditing RIL implementation. Such checklists are the basis for assessment of compliance with the TFF RIL Standard.

Annex I to this document provides a generic example of such a checklist, which may be modified or expanded to meet local conditions on a country by country basis.

In developing location-specific checklists to guide the implementation and evaluation of RIL as well as the auditing of compliance with RIL, the following criteria and indicators need to be adequately addressed.

Principle 1: *Timber-harvesting operations should use technologies and procedures that are designed to:*

- ***minimize impact on the environment (including wildlife) and related social aspects;***
- ***minimize damage to potential future crop trees (including regeneration and pre-selected seed trees);***
- ***provide working conditions that meet internationally recognized standards and consider workers' occupational health and safety; and***
- ***maximize timber utilization and recovery in the forest.***

Aspect 1) RIL Elements

Criterion 1.1 The forest management entity is in the possession of up-to-date manuals that define concepts, procedures and specific techniques for RIL.

Indicator 1.1.1 Manuals and/or work instructions for the following elements/activities are available and up to date:

- Operational scale mapping
- Pre-harvest inventory
- Harvesting planning including the identification of reserve (including exclusion zones or buffer strips) areas, protection of forest hydrological functions, recognition and protection of culturally and environmentally significant features
- Tree marking
- Vine cutting where required

- Road and landings planning, construction, maintenance and deactivation as appropriate to local conditions and operating requirements
- Skid trail planning, location and construction and de-activation (anti-erosion measures)
- Controlled (i.e. directional) felling practices
- Winching and skidding to minimize machine movements
- Deactivation or decommissioning of logging area
- Occupational health and safety (See *critterion 3.1*)
- Monitoring and evaluation (See *critterion 4.1*)

Specific additional elements to improve utilization and recovery in the forest:

- Establishment of appropriate utilization standards
- Use of appropriate technology
- Coordination of felling and skidding activities so that logs are transported to markets (landings) or processing facilities as quickly as possible

Indicator 1.1.2 Manuals and working instructions are up to date.

Indicator 1.1.3 RIL as defined by its technical elements has been integrated in the forest management plans.

Criterion 1.2 *The forest management entity implements operations based on up-to-date manuals that define concepts, procedures and specific techniques for RIL.*

Indicator 1.2.1 Personnel are aware of manuals and/or instructions.

Indicator 1.2.2 Personnel have access to the relevant up-to-date manuals and/or instructions.

Indicator 1.2.3 Actions prescribed in the manuals and/or instructions are routinely implemented.

Criterion 1.3 *Machinery and equipment are appropriate for RIL and used to achieve the objectives of RIL.*

Indicator 1.3.1 The use and maintenance of equipment and machinery are well organized and executed.

Indicator 1.3.2 Chemicals, oil and fuel are supplied and disposed of in an environmentally appropriate manner.

Aspect 2) Outcome Requirements for the Residual Forest Stand

Normative values for the indicators are location specific. Formally established normative values must be incorporated into the auditors' checklist.

Criterion 2.1 *Harvested forests do not show avoidable damage to soils, hydrological systems and critical wildlife habitat.*

Indicator 2.1.1 Roads, skid trails and log landings are constructed, maintained, and deactivated so as to minimize water runoff, critical wildlife habitat degradation and soil erosion.

Indicator 2.1.2 Ground disturbance due to machine activity is minimized.

Indicator 2.1.3 The integrity of forest hydrological functions is maintained.

Indicator 2.1.4 Forest fragmentation and barriers to movement by sensitive wildlife are minimized.

Criterion 2.2 *The residual stand does not show avoidable damage to future crop trees and regeneration which could jeopardize sustainable commercial timber production for the next prescribed felling cycles.*

Indicator 2.2.1 Felling practices reflect acceptable silvicultural requirements for successful regeneration of the residual stand.

Indicator 2.2.2 Sufficient numbers of good quality residual trees remain to form the basis for the next harvesting cycle.

Criterion 2.3 *The logged-over forest continues to provide environmental, and socio-economic and cultural services to local communities.*

Indicator 2.3.1 The forest management entity's policy and practices do not interfere with local communities' traditional rights to timber and non-timber forest products.

Indicator 2.3.2 Operational activities and measures are in place to adequately safeguard downstream water quality. Measures are taken to prevent sediments from entering water bodies during road construction and logging activities.

Indicator 2.3.3 Planning identifies and operational activities safeguard culturally significant sites and values.

Indicator 2.3.4 Provisions are made to control over harvest of non-timber forest products (particularly wildlife) due to improved access to the forest by means of harvest roads and skid trails.

Criterion 2.4 *Results in the forest indicate that logging practices minimize wasteful felling and maximize utilization of wood under the prevailing administrative, legislative and economic constraints.*

Indicator 2.4.1 Measures are in place to ensure proper felling and bucking to minimize logging waste.

Indicator 2.4.2 Measures are in place to ensure maximum wood utilization.

Aspect 3) Occupational Health and Safety

Criterion 3.1 *Safe and healthy working conditions for all personnel according to international occupational health and safety standards are provided.*

Indicator 3.1.1 Safety standards have been developed and are followed.

Indicator 3.1.2 Personnel are familiar with safety instructions and safety gear.

Indicator 3.1.3 Operators are supplied with safety equipment suitable to their job.

Indicator 3.1.4 Personnel consistently use safety gear and safe practices.

Indicator 3.1.5 Machines are equipped with safety items (fire extinguisher, first-aid kit, etc.).

Indicator 3.1.6 A sufficient number of personnel have been trained in first aid.

Indicator 3.1.7 Safety record reflects implementation of best safety practices.

Aspect 4) Components of the Management System

Criterion 4.1 *Management systems include procedures for planning, monitoring, evaluation and continuous improvement in order to ensure the effective application of RIL practices.*

Indicator 4.1.1 Management protocols ensure effective coordination between operational units and/or job functions.

Indicator 4.1.2 Management has put in place a system for monitoring and evaluating compliance of harvesting operations with procedures and the ecological and social impact of harvest operations.

Indicator 4.1.3 Monitoring and evaluation results are communicated and used, if necessary, in refining and amending forest management and/or safety plans .

Aspect 5) Professional Level of Personnel

Criterion 5.1 *All personnel involved in harvesting operations have achieved appropriate competence levels for applying RIL.*

Indicator 5.1.1 Competency requirements are well articulated for all jobs by means of a job description.

Indicator 5.1.2 Sufficient numbers of trained/experienced personnel are available to carry out all data collection and analysis, planning and operational functions.



3) Legality Requirements

TFF has formulated basic legal requirements for forest management. Forest management entities participating in the Forest Market Linking (FML) Programs should hold a third party verified certificate of Legal Origin. Forest management entities participating in the RIL Verified[®] scheme should hold a third party verified certificate of Legal Compliance. TFF will accept certificates issued by certification schemes that meet TFF requirements for Legal Origin, respectively Legal Compliance as well as TFF requirements regarding independent auditors. The latter are described in Annex II section 3.

Independent third parties will verify Legal Origin or Legal Compliance against their standards. These standards and their assessment systems must be publicly available.

National legislation, including ratified international Agreements and Treaties, is the basis for compliance requirements. Elaborated standards are, by definition, country specific. The TFF standards for Legal Origin and Legal Compliance (refer to this section) establish the TFF requirements for the scope of legislation that a legality standard or SFM standard should cover in either of these cases. For that reason criteria are not further detailed in indicators, instead guidance is provided for interpretation, where appropriate.

The requirements for **Legal Compliance** are grouped under seven aspects, the requirements for **Legal Origin** are limited to the first four aspects:

- 1) Legal use rights
- 2) Harvest regulations including Impact Assessment
- 3) Royalties, taxes, fees and compensation
- 4) Management system
- 5) Customary tenure and use rights
- 6) Social laws and regulations
- 7) Environmental laws and regulations

Aspect 1) Legal Use Rights

Criterion 1.1 *The company/owner/manager is registered according to the national laws and regulations*

Guidance:

Criterion 1.2 *The company/owner/manager holds a valid license to harvest timber on the Forest Management Unit (FMU) that has been issued by the appropriate government authority.*

Guidance: The FMU must be legally classified for the use of commercial timber production. The boundaries of the forest management unit as well as the protected areas within the FMU must be well defined and marked.

Aspect 2) Harvest regulations

Criterion 2.1 *Timber harvest operations are based on management plans and operational harvest plans, approved by the competent authority, as required by law and/or by the appropriate government authority.*

Guidance:

Criterion 2.2 *Environmental and/or Social Impact Assessment have been conducted if and as required by legislation or government prescriptions.*

Guidance: Impact assessments reports must be approved by the competent authority. Implications of the findings and recommendations of the impact assessment shall be reflected in the management plan and harvest plan.

Criterion 2.3 *Harvest plans respect protected areas, protected species and regulations concerning tree species listed by CITES.*

Guidance: Maps show areas where harvesting is allowed, protected areas and occurrence of protected species and species listed by CITES. Requirements of CITES must be fulfilled.

Criterion 2.4 *Harvesting plans respect regulations pertaining to annual allowable cut, production quotas and tree dimension limitations.*

Guidance: Maps show individual trees or groups of trees to be cut. A harvest register should list trees by species, dimension and harvest block. Species and tree dimensions should concur with regulations.

Criterion 2.5 *Harvesting is executed according to the approved plans.*

Guidance: All logs must come from marked trees on the map and listed in the tree harvest register. The trees must be harvested in the appropriate annual harvest block.

Aspect 3) Royalties, taxes, fees and compensations

Criterion 3.1 *The company/owner/manager of the Forest Management Unit has paid all applicable fees and taxes for its license covering the FMU and the timber extracted from it, including and where appropriate, prescribed payments to communities.*

Guidance: Royalties and taxes may be on an areal basis and/or production bases. Various governmental levels may impose royalties and taxes. In some cases formal obligations exists to compensate or benefit local communities, including indigenous people.

Aspect 4) Management system

Criterion 4.1 *The company/owner/manager of the Forest Management Unit has an auditable system in place for documenting its operations and fulfilment of its obligations.*

Guidance: In order to fulfill its obligations a company should maintain a register of relevant acts and regulations. The company should be able to demonstrate how it manages compliance with the relevant regulations and obligations.

Aspect 5) Customary tenure and use rights

Criterion 5.1 *The company/owner/manager of the Forest Management Unit has inventoried and respects customary tenure and use rights.*

Guidance: In addition to the requirement C 3.1 *Compensation* this criterion addresses rights and uses such as collecting NTFP's hunting and respect for objects with religious and cultural value. The UN Declaration on the Rights of Indigenous Peoples, as far as ratified, may be relevant for the implementation of this criterion.

Agreements with relevant communities should have been established on timber volumes to be cut under customary rights. Timber harvested under these agreements is considered to be legal.

Aspect 6) Social laws and regulations

Criterion 6.1 The company/owner/manager of the Forest Management Unit complies with all local and national social laws and regulations and, as far as ratified, social international Agreements and Treaties, relevant to forest management.

Guidance: Examples of subjects addressed by social laws and regulations are: right to organize and negotiate; employment conditions including enumerations; health and safety. Also regulations as to participation, consultation must be taken into account. Examples of relevant international Agreements are: International Labour Organisation (ILO) Agreements. World Health Organization Agreements.

Aspect 7) Environmental laws and regulations

Criterion 7.1 The company/owner/manager of the Forest Management Unit complies with all local and national environmental laws and regulations and, as far as ratified, environmental international Agreements and Treaties, relevant to forest management.

Guidance: This criterion pertains to laws and regulations addressing subjects like fauna, flora, biodiversity, water, soil and erosion protection, air. International Treaties and Agreements. Examples of relevant international Agreements are: Convention on Biological Diversity (CBD); Convention on International Trade of Endangered Species (CITES).

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4) Chain-of-Custody Requirements

TFF has formulated basic requirements for each party in the CoC to deal with transport, processing, storage, and administration necessary to track RIL Verified® products. TFF will accept certificates issued by certification schemes that meet TFF requirements for the CoC, as well as TFF requirements regarding independent auditors. The latter are described in Annex II section 3.

Independent third parties will verify each link in the CoC and the integrity of the CoC against their standards. These standards and their assessment systems must be publicly available. The CoC will commonly require verification at least in two locations: one at the origin and one at the end use; if the timber passes through intermediate locations, additional verification is necessary for each party in the CoC. Each party in the CoC may choose to use the physical distinction process (aspect 3), the percentage based process (aspect 4) or both.

The TFF CoC requirements are grouped under four aspects:

1. Legal registration;
2. Management system of CoC party;
3. Physical distinction of flow of timber;
4. Mixed products (percentage based outputs and assembled products).

Aspect 1) Legal Registration

Criterion 1.1 *Parties in the CoC are legally registered according to national laws and regulations and have a legally obtained license to operate.*

Indicator 1.1.1 Authentic legal registration forms exist and show that the parties are legal entities and meet the legal requirements to operate in their indicated field of activity.

In addition, the TFF RIL verification system requires evidence of the forest management entity's legal compliance for the timber that is to be sold as RIL Verified® timber.

Aspect 2) Management System of CoC Party

Criterion 2.1 *Parties in the CoC apply a management system that allows reliable and continuous tracking of timber from the harvest location to the market.*

Indicator 2.1.1 Clear documentation of an internal management system exists, which enables the reliable tracking of logs from their source to the market and at intermediate locations (e.g. processing facilities).

Indicator 2.1.2 The management system for reliable timber tracking is being implemented.

Aspect 3) Physical distinction of Flows of Timber

Criterion 3.1 *Parties in the CoC distinguish physically and administratively RIL Verified® logs and timber products, from other logs and timber products.*

Indicator 3.1.1 Individual pieces or bundles of RIL Verified® timber are marked, followed, and kept identifiable during the handling, transport and storage through the entire CoC.

Indicator 3.1.2 Individual pieces or bundles of RIL Verified® timber are adequately recorded on separate and distinct forms or registers.

Indicator 3.1.3 RIL Verified® logs and wood products show evidence of verified compliance with the TFF RIL Standard and their verified legal compliance on accompanying documents.

**Aspect 4) Mixed products
(percentage based outputs and assembled products)**

1) Percentage based woodflows

a) *Minimum average percentage system*

Criterion 4.1 *Bundles/batches of RIL Verified® timber contain at least 70% RIL Verified® wood, while the remaining % has evidently been sourced from other verified legal origin(s).*

Indicator 4.1.1 Accompanying documents confirm the RIL Verified® wood percentage and show evidence of third-party verified compliance with the TFF RIL Standard for the RIL Verified proportion and legal origin requirements for the non RIL Verified proportion.

b) *Input/output credit system*

Criterion 4.2 *The proportional output volume of RIL Verified® wood in a percentage based system is equivalent to the proportional input volume, while the accompanying timber flow can be demonstrated as having been sourced from other verified legal origin(s).*

Indicator 4.2.1 Accompanying documents confirm the RIL Verified® wood percentage output to be equivalent to the RIL Verified® wood percentage input, and show evidence of third-party verified compliance with the TFF RIL Standard for the RIL Verified proportion and legal origin requirements for the non RIL Verified proportion.

2) Assembled wood

Criterion 4.3 *Assembled wood products of RIL Verified® timber contain at least 70% RIL Verified® wood, while the remaining % has evidently been sourced from other verified legal origin(s). (this criterion does not apply to products with a tropical wood facing, criterion 4.4 refers to those products)*

Indicator 4.3.1 Accompanying documents confirm the RIL Verified® wood percentage in the assembled product, and show evidence of third-party verified compliance with the TFF RIL Standard for the RIL Verified proportion and legal origin requirements for the non RIL Verified proportion.

Criterion 4.4 *The surface of products with a tropical wood facing such as elements for flooring and paneling contains 100% RIL Verified® wood, while the other components have evidently been sourced from other verified legal origin(s).*

Indicator 4.3.1 Accompanying documents confirm the 100% RIL Verified® wood content of the surface of the assembled product, and show evidence of compliance with the TFF RIL Standard for the RIL Verified proportion and legal origin requirements for the non RIL Verified proportion.

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Introduction

Annex I presents specific criteria and indicators, with the intention to provide guidance to auditors assessing conformity of logging operations with the TFF RIL Standard. The criteria and indicators and explanations are helpful for assessments throughout the tropical region. They are presented in tabular form.

Auditors are advised to consult with TFF Regional offices for country-specific auditing guidelines, legality standards, and other documentation available to assist and guide the auditing process. (consult www.tropicalforestfoundation.org or regional addresses)

Aspect 1) RIL Elements

Criterion	Indicator	Audit guidance
Criterion 1.1. The forest management entity has up to date manuals that define concepts, procedures and specific working methods for RIL.		
	Indicator 1.1.1. Manuals and/or work instructions for the following elements/activities are available:	
	Operational scale mapping	<p>The forest management entity has acquired appropriate scale contour maps through remote sensing methods or has adopted suitable ground survey procedures to permit routine contour and tree position mapping at the level of the block (approx. 100ha).</p> <p>Maps are adequate and reliable enough to permit accurate planning of skid trails according to contours, location of physical features (streams) and tree location information.</p>
	Pre-harvest inventory	<p>Inventory manuals include clear parameters (species, minimum dbh, bole form etc.) for trees that should be included in the inventory. Species protected by national law, CITES and pre-selected seed trees are excluded from harvesting.</p>
	Harvesting planning including the identification of reserve areas, protection of forest hydrological functions, maintaining stand productivity, and recognition and protection of culturally significant features	<p>Harvesting boundaries are shown on the maps according to existing regulatory requirements.</p> <p>Procedures for the establishment of logging boundaries are clearly documented.</p> <p>Harvesting boundaries do not conflict with or overlap with protected area boundaries as identified on a higher order plan, either inside or outside of the concession boundary.</p> <p>Harvesting policies and practices reflect prescribed silvicultural requirements for successful regeneration of the residual stand.</p> <p>Operational scale harvesting plans indicate how the forest management entity proposes to carry out harvesting activities.</p> <p>Harvesting plans are prepared based on the contour and tree position maps.</p> <p>The forest management entity has developed operational and environmental standards, protocols or manuals to guide planning and logging activities.</p>
	Tree marking	<p>Instructions refer to weatherproof marking and distinguish</p>

		<p>between:</p> <ol style="list-style-type: none"> 1. Trees for current harvest. 2. Trees for future harvest. 3. Trees to be protected (could be seed trees, fruit for animals and people, species protected by CITES or national law, etc.)
	Vine-cutting where required	Where applicable, vines on trees to be harvested and adjacent trees within the felling range are cut at the base of the tree at least six months, preferably more, prior to harvest.
	Road and landings planning, construction, maintenance and deactivation as appropriate to local conditions and operating requirements	<p>The forest management entity has operational manuals to guide planning, location, construction, maintenance and deactivation of forest roads with a view to minimize erosion, and the impact on the conservation and regeneration of the forest and related values. These manuals cover bridges, culverts, skid trails and landings.</p> <p><i>(Note that old roads are useful for silvicultural and forest monitoring activities.)</i></p> <p>Road locations and landings are routinely indicated on operational planning maps prior to commencement of timber harvesting planning and operations.</p>
	Skid trail planning, location and realization.	<p>Instructions include opening up of skid trails prior to felling activities and in accordance with operational manuals and environmental standards.</p> <p>Updated maps show actual location of skid trails where they deviate from the original plan.</p>
	Controlled felling practices	<p>Manuals and instructions on directional felling elaborate simple decision making criteria for tree fellers. These include considerations for:</p> <ul style="list-style-type: none"> ▪ personal safety; ▪ alignment to skid trail; ▪ location of future crop and protected trees; ▪ recoverability of the log from the felled tree; and ▪ minimizing felling damage. <p>Availability and use of pocket sized cards or similar items covering basic felling and bucking considerations.</p>
	Winching and skidding to minimize machine movements	<p>The forest management entity has developed operating instructions for tractor operators to minimize soil disturbance and damage to the residual stand. Instructions ensure that:</p> <ul style="list-style-type: none"> ▪ machines remain on the skid trails and maximize winching, and ▪ tractor operators do not develop new skid trails which are not marked in the field without consulting the forest manager or the head of the planning team.
	Deactivation of logging area	The forest management entity has a clearly stated policy for deactivating landings, skid trails and roads no longer required for forest management, which is deliberately aimed at minimizing the erosion and to safeguard against unauthorized activities.
	Establishment of appropriate utilization standards	The forest management entity has a clear, written utilization policy and bucking standards per species. This policy should specify maximum tolerable defect, preferred log lengths, and acceptable species.
	Use of appropriate	Wherever economically feasible, the forest management entity

	technology	<p>employs appropriate logging machinery to minimize impact.</p> <p>Operators are equipped with appropriate hand tools including wedges and sledge hammers, to ensure safety in the workplace and the achievement of RIL goals.</p> <p>Operators are trained in the specific RIL techniques of each activity</p> <p>The forest management entity has clear documented guidelines on logging rigs (wire-rope used on machines, choker straps, ferrules and hooks)</p>
	Coordination of felling and skidding activities respectively so that logs are delivered to log markets as quickly as possible	The forest management entity has documented guidelines establishing the sequence of felling/log removal to log market/landing to conserve log quality through immediate removal of the log from stump to log market/landing.

Aspect 2) Outcome Requirements for the Residual Forest

Criterion	Indicator	
Criterion 2.1. <i>Harvested forests do not show avoidable damage to soils, hydrological systems and wildlife habitat.</i>		
	<p>Indicator 2.1.1 Roads, skid trails and log landings are constructed, maintained and deactivated according to the relevant manuals and instructions</p> <p>Indicator 2.1.2 The integrity of the forest hydrology is maintained through proper planning and operational control</p>	Verifier for both indicators: Road plans and skid trail plans drawn on tree position and contour maps

Criterion	Indicator	
Criterion 2.2. <i>The residual stand does not show avoidable damage to future crop trees and regeneration which could jeopardize sustainable commercial timber production for the next felling cycles.</i>		
	<p>Indicator 2.2.1 Felling regulations and practices reflect acceptable silvicultural requirements for successful regeneration of the residual stand</p> <p>Indicator 2.2.2 Sufficient numbers of good quality residual trees remain to form the basis for the next harvesting cycle</p>	<p>RIL manuals for felling and skidding</p> <p>Future crop trees to be indicated with position, species and DBH on the 100% inventory maps and on the post operation inventory maps where required.</p>

ANNEX II: Protocol for the Verification of Compliance with the Requirements of the RIL Verified® Mark

1) Rules for the Use of the Term and/or RIL Verified® Mark

Verification of compliance with the TFF RIL Standard may be executed within the framework of a forest certification system or outside such systems under the sole authority of TFF. This protocol contains the procedures and conditions of the TFF verification process.

Forest management units that, according to this protocol, comply with the TFF RIL Standard will be granted permission to use the RIL Verified® mark for timber sourced from these forest management units for a period of five years. During this period, independent auditors must annually verify compliance with the Standard, at the cost of the applicant. After the period of five years the forest management entity may apply for an audit to renew the permission to use the RIL Verified® mark.

TFF is the owner of the RIL Verified® system and mark and is the sole entity issuing the mark and granting the right to refer to timber and timber products as sourced from RIL Verified® harvesting operations. TFF will decide whether a forest management entity in combination with a well defined forest management unit, qualifies for the RIL Verified® mark. It will base its decision on the assessment report prepared by an independent third party.

The RIL Verified® name and mark have been registered. They may only be used by parties in the CoC which have been independently verified to comply with the TFF CoC requirements as described in section 4 of the main document.

Communication about RIL verification is business to business. Upon agreement with TFF, including user fee, the term RIL Verified® may be used on accompanying documents of timber and timber products, on promotion material and external statements. Similarly, the RIL Verified® mark may be used on crates and bundles of RIL Verified® timber during transport and storage. The logo shall be affixed in such a way as to not become detached during transport or while in storage.

2) Verification Process

2.1) Request for verification and requirements for acceptance

1) TFF will charge a fee to cover the costs for handling a request for verification of compliance with the TFF RIL Standard. This fee is in addition to the costs of the audit, which will be borne by the applicant, and will be based upon individual circumstances.

2) Only well defined forest management units that hold a certificate of third-party verified legal compliance and a third-party verified sound Chain of Custody are eligible for verification of compliance with the TFF RIL Standard. Verification of compliance with the RIL Standard takes place upon request by the manager/owner of the forest management unit. Applications may be received by the Executive Director at TFF headquarters or by a TFF designate (project director or other). The latter will forward the request to the TFF Executive Director. The request must include:

- names of the forest management entity and responsible manager;
- size and location of the forest management unit;
- legally obtained permit of the forest management entity to harvest in the forest management unit;
- evidence (certificate accepted by TFF) of third-party verified compliance with all relevant forest management legislation and regulations (legal compliance) ; and
- evidence (certificate accepted by TFF) of third-party verified sound chain-of-custody, including legal registration of the entity.

3) Dependent on the information received, TFF may request additional information, before further processing the request.

All documents that are not publicly available will be kept **confidential at all times** (throughout) the verification process.

4) Upon receipt and acceptance by the TFF Executive Director of all relevant information and documents, the TFF designate (project director or other) will inform the applicant that TFF is ready to receive a proposal for any qualified auditor whom the forest manager wishes to engage for the assessment. Qualification requirements for the auditor are formulated in section 4 of this protocol for the verification of compliance with the TFF RIL Standard.

Prior to the actual assessment, the independent third party will submit to the TFF designate (project director or other) a declaration of compliance with the requirements for independent auditors, as contained in section 4 of this protocol, supported by accreditation documents.

5) The TFF designate (project director or other) will inform the independent third party and the applicant about the acceptance of the third party.

2.2) Assessment and reporting process

The independent third party must verify:

- compliance of the harvesting operations with the relevant legality standard (see section 1.6);
- compliance of the (third-party verified) CoC with the TFF CoC requirements as contained in section 4 of the main document; and
- compliance with the TFF RIL Standard as contained in section 2 of the main document.

The independent third party must submit to the TFF designate (project director or other) its assessment report. The TFF designate (project director or other) will forward the documentation to the TFF Executive Director for consideration by the RIL Verified[®] Committee.

The RIL Verified[®] Committee, as established by the TFF Board of Directors (Board), will review the report and decide, on behalf of the TFF Board, whether or not to grant a RIL Verified[®] mark. The TFF Executive Director, the relevant TFF Project Director, a TFF Board representative from an environmental NGO, and two *ad-hoc* members of the TFF Board constitute the RIL Verified[®] Committee. One of the *ad-hoc* members will represent the industry. The Executive Committee of TFF will appoint the Chairman and the two *ad-hoc* members of the RIL Verified[®] Committee.

2.3) Verification Protocol

2.3.1 Decision making rules

The RIL Verified[®] Committee will base its decision on the assessment report of an independent qualified third party. For a positive decision on use of the RIL Verified[®] mark, all aspects of the TFF RIL Standard must be met, and evidence of third-party verified legal compliance must be available. Minor corrective action requirements (CARs) at the level of criteria may be accepted, dependent on their number and impact of the short comings.. Should views among Committee members differ, simple majority voting applies; in case of a tie, the Chairman will cast the deciding vote.

In the future, accredited Certification Bodies (CBs) may execute the Verification Protocol. In that case, the decision as to whether or not the timber harvesting complies with the requirements of the RIL Verified[®] mark is left to the Certification Body.

A contract setting out the mutual rights and obligations, including agreement on the CB's assessment system, must be signed between TFF and the independent auditors wishing to administer the RIL Verified[®] mark system.

Throughout the CoC the origin of timber and timber products referred to as RIL Verified® must be guaranteed. Therefore, parties in the CoC must comply with the CoC requirements as formulated in section 4 of the main document. To that end, the TFF Board will rely on third-party declarations of compliance. Any party in the CoC without a positive declaration of compliance will not be granted the right to sell timber and timber products under the RIL Verified® mark system.

2.3.2 Evidence

After a positive decision by the TFF RIL Verified Committee, and upon execution of an agreement with TFF, including the payment of a user fee, the owner of the timber is entitled to refer to the timber concerned as RIL Verified®. This reference may take the form of an accompanying document to the particular shipment of timber or timber products, or as an official mark affixed to shipping containers or batches of timber products.

Sample of RIL Verified Mark:



2.3.3 Validity and periodic inspections

The origin itself will be specified as an area with well-defined boundaries, e.g. concession or community forest, and with a well-defined forest management authority, e.g. the concessionaire, owner, or authority of the community.

TFF will require the independent auditors to undertake periodic inspections of all certificate holders as a condition for continued use of the RIL Verified® mark. Inspections must take place at least once a year, at a randomly chosen time and location.

A change in ownership of a forest management entity or forest management unit that holds the TFF RIL Verified® mark requires a re-inspection for compliance with all aspects of the system within six months of the change in ownership.

2.3.4 Public information

Summary reports of assessments by the CB of forest management units which were granted RIL Verified® marks will be made available through the TFF Executive Director upon request.

2.4) Suspension and Withdrawal Procedure

In order to secure the reliability of the RIL Verified[®] mark, the TFF Board will monitor the outcome of the periodic third-party audits of the timber harvesting operations and the parties in the CoC, in accordance with this Verification Protocol.

The TFF Board may **suspend** a RIL Verified[®] mark if there are well-founded indications that a forest operation or any party in the CoC is not performing in accordance with the TFF RIL Standard or CoC requirements. A decision to suspend a RIL Verified[®] mark will immediately trigger the requirement of corrective actions by the relevant party for reinstatement of the mark.

A decision to **withdraw** a mark may be made if the TFF Board has been convinced that the relevant party does not comply through a periodic audit report of a CB, or any other verifiable factual evidence. The deliberate non-compliance with the TFF RIL Standard by the timber harvesting license holder will be followed by the immediate withdrawal of the right to use the RIL Verified[®] mark and associated product identifiers.

If deliberate non-compliance with the CoC requirements by any party or parties in the CoC is observed and well founded, timber, timber products and accompanying documents leaving the location of the party at fault in the CoC will no longer be allowed to carry any reference to RIL Verified[®]. Immediate withdrawal of the right of that party or parties to use the term RIL Verified[®] or the associated mark on any product documentation, packaging, and invoices, and any forest management entity advertising, company letters, and letterhead will follow. The party or parties at fault can be any party in the CoC, from the timber harvesting mark holder to the last retailer and user in the CoC.

Trading and processing holders of CoC certificates will be informed in writing about the suspension or withdrawal of the RIL Verified[®] mark. Existing batches of timber or associated documentation, bearing the RIL Verified[®] term or mark may still be sold as such. This excludes timber and timber products produced after the withdrawal has been announced.

2.5) Objections and Appeal

Participants in the CoC of RIL Verified[®] timber may object to TFF Board decisions. The TFF Board will consider such objections and may reverse its earlier judgment.

If the objection is not accepted by the TFF Board, the objecting party can appeal to an independent Board of Appeals established by TFF. The final decision of the Board of Appeals is binding.

The TFF Board of Directors assigns duties to a TFF Board of Appeals. The Board of Appeals consists of three eminent independent persons, of whom at least one is an attorney. All three members of the Board of Appeals must have a sound understanding of the subject and the legal context. The members of the Board of Appeals may not have any affiliation or relationship with any of the parties involved in the appeal. The Board of Appeals is authorized to annul the decision of TFF Board. Furthermore, its ruling regarding the resolution of disputes will be binding.

2.6) Establishing and Changing the Verification Protocol

The Verification Protocol has been established and approved by the TFF Board of Directors. It will be reviewed at regular intervals and, if necessary, amended. Amendments and revisions shall be approved by the TFF Board of Directors.

2.7) Procedure for Situations not Covered by the Verification Protocol

The TFF Board of Directors has the authority to decide on circumstances not covered by the Verification Protocol.

3) The Requirements regarding Independent Auditors

Audits must be independent, and independent auditors must comply with internationally accepted standards of professionalism. TFF has formulated basic requirements for auditing firms and independent auditors that will assess compliance with the TFF RIL Standard, the TFF CoC requirements or the TFF legal requirements. These requirements include: 1) the auditor's qualifications, and 2) the auditors' assessment system. Six aspects are to be considered.

3.1) Third-Party Qualifications

Aspect 1): Accreditation

Criterion 1: The third party that assesses compliance with the TFF RIL Standard must be accredited or at least comply with the requirements of ISO guide 66 (EMS system). The third party that assesses compliance with CoC requirements must be accredited or at least comply with the requirements of ISO guide 65 (product certification).

Indicator 1.1 The third party can show that it complies with the requirements of ISO guide 66, or at a minimum guide 65 for a third party conducting a CoC assessment.

In the absence of accreditation systems for assessing RIL performance, accreditation on the basis of ISO guide 66, respectively 65 will be accepted. However, it is preferred that the third party is specifically accredited by a member of the International Accreditation Forum (IAF) to assess compliance with sustainable forest management standards.

Aspect 2): Qualifications of auditors

Criterion 2: The team engaged in the assessment of compliance with the TFF RIL Standard and legal requirements must have professional knowledge of relevant legislation (e.g. environmental, labor, transport), and forest management, and be acquainted with national and local conditions as they concern forest management.

Auditors assessing compliance with CoC requirements must have professional knowledge of CoC.

Indicator 2.1 The curriculum vitae of auditors must provide evidence of relevant and sufficient professional knowledge and experience related to forest management respectively to CoC.

3.2) The Third-Party Assessment System

Aspect 3): Audit procedures

Criterion 3: Audit procedures must comply with relevant articles of ISO Guide 66 and/or 65. The checklists and the procedure must include assessment of documentation as well as verification of outcomes in the forest respectively the CoC company and must be publicly available.

Indicator 3.1 Comprehensive checklists are available for the assessment of compliance with the TFF RIL Standard, Legal requirements and/or CoC requirements.

Indicator 3.2 The actual assessment process in and around the timber license area respectively the CoC company has been elaborated and is available.

Aspect 4): Audit report

Criterion 4: The assessment system that is operated by the third party must contain guidelines for the content of the audit report.

Indicator 4.1 The audit report includes:

- information on the composition of the assessment team (if there is more than one member) and the responsibility and expertise of each team member;
- the auditor's checklist;
- information on the actual implementation of the assessment;
- key findings;
- information on any non-compliance issues and corrective action requirements (CARs); and
- a summary report.

Aspect 5): Decision-making on corrective action requirements

Criterion 5: The certification system (for Legality and/or CoC) must contain guidelines for decision making on necessary corrective action requirements prescribed by the independent auditor.

Indicator 5.1 Guidelines are available for the assessment of shortcomings and the period of time during which corrective measures must be initiated and completed.

Aspect 6): Monitoring

Criterion 6: The third-party assessment system must contain guidelines for the contractual period and the frequency of audits.

Indicator 6.1 The contract between the third party and the RIL Verified® mark holder will specify the duration of validity of the RIL Verified® mark.

Indicator 6.2 The contract must stipulate the frequency (at least once a year, at a randomly chosen time and location) and method of monitoring.

Note: If the third party has been accredited by a member of the International Accreditation Forum (IAF) specifically for assessing the quality of forest management, and/or the CoC, the Accreditation Body must include the requirements addressed under aspects 1 to 6 listed above. The accreditation will then implicitly secure the appropriateness of the audit including the audit report and monitoring. The accreditation then also must provide for adequate supervision by the relevant IAF member of the correct implementation of the relevant requirements on which the accreditation is based.

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ANNEX III: Protocol for the TFF RIL Forest-Market Linking Program (FML Program)

1) Purpose of the TFF RIL Forest-Market Linking Program

Compliance with the TFF RIL Standard is a significant step towards sustainable forest management (SFM). In this respect the TFF RIL Standard should be viewed as an important element of the phased approach towards SFM. Phased approaches aim at full SFM certification. Phased approaches should preferably be integrated in credible certification systems.

It should also be recognized that shifting from conventional logging to reduced impact logging (RIL) requires time as management and operators need to adjust and strengthen capacities. Progress toward full compliance with the TFF RIL Standard is part of the phased approach towards SFM.

To facilitate the adoption of phased approaches toward SFM by certification systems, TFF has introduced a pilot program in Indonesia that may be used as a point of reference for all tropical regions. The program has two main components: (1) Companies that are being trained in the application of RIL, but have not yet achieved RIL Verification, and (2) and the linkage of such companies to buyers in the export market. The program is known as the TFF RIL Forest-Market Linking (FML) Program. Progress toward full compliance with the TFF RIL Standard is controlled and verified.

TFF offers the manuals developed for Indonesia as examples for use in other countries. TFF invites comments on these manuals and solicits your experiences with their use in your operations.

This Annex III outlines procedures and conditions set by TFF for participating in the FML Program.

2) Concept of the TFF RIL Forest-Market Linking Program

Through the FML Program, training can be provided to staff at all hierarchical levels, i.e. managers, supervisors and operators on the ground, in the application of RIL. The aim of the training is to enable personnel involved in logging to improve performance to the extent that an independent third-party auditor can confirm compliance with the TFF RIL Standard. To provide incentives for meeting the TFF RIL Standard, this complementary program is set up to link participants in the program to buyers with interest in RIL Verified Timber.

Basic elements of the FML Program include:

- a program of training in all RIL elements;
- verified legal compliance and compliance with the RIL Standard within 24 months or the FML privileges will be withdrawn, unless otherwise authorized by the TFF Board;
- verifiable milestones (RIL elements) to be achieved during participation or the FML privileges will be withdrawn, unless otherwise authorized by the TFF Board;
- a credible verification system of progress; and
- an explanation of withdrawal by TFF and appeal procedures.

Annex I provides guidance to auditors for assessing progress toward full compliance with RIL. TFF has developed Annex I (Guidance to RIL Auditing) for some particular criteria and indicators, with the intention to provide specific guidance to auditors assessing conformity of logging operations with the TFF RIL Standard.

3) Application Procedure and Requirements

Participation must be requested by the manager/owner of a forest management unit. All requests must be submitted to the Executive Director of the Tropical Forest Foundation and the appropriate TFF Project Director (if the forest management unit is located in a region where TFF operates).

Entry requirements

Only well defined forest management units that hold a, by TFF accepted, certificate of third-party verified Legal Origin and a, by TFF accepted, certificate of a third-party verified sound Chain of Custody are eligible for participation in the FML Program.

Requests for participation must include the following:

- name of the forest management entity and responsible manager;
- size and location of the forest management unit;
- legally obtained permit of the forest management entity to conduct harvesting operations in the forest management unit;
- evidence (certificate accepted by TFF) of third-party verified compliance with the requirements of Legal Origin including legal registration of the entity; and
- evidence (certificate accepted by TFF) of third-party verified CoC,

TFF will charge a fee to cover part of the costs of participating in the FML Program.

Once an application has been accepted, an agreement will be signed between the applicant (Manager) and TFF (Project Director). The contract will stipulate the following:

- training and technical improvements and procedures outlined in an agreed-upon action plan;
- steps to be taken during a specified timeframe (indicating maximum duration not exceeding 24 months);
- independent verification of accomplished training and progress in RIL performance during participation in the FML program;
- commitment to meet the requirements of Legal compliance and of the TFF RIL Standard at the end of the FML program and independent third-party assessment of conformity;
- issues pertaining to linking applicant to timber buyers; and
- rules for communicating the participation in the FML program.

4) Rules for Communicating the Participation in the FML Program

TFF will set the rules for communicating participation in the FML program. TFF is the owner of the TFF Legal/CoC label and is the sole entity issuing the label and granting the right to refer to timber and timber products as sourced from harvesting operations participating in the FML Program. TFF will decide whether a forest management entity and its well-defined forest management unit qualify for participation in the program and the use of the TFF Legal/CoC label.

After a positive decision by the TFF Project Director, and upon execution of an agreement with TFF including a user fee, the entity will be entitled to communicate its formal participation in the FML Program.

Communicating formal participation in the FML Program will be business to business. Upon execution of an agreement with TFF, including a user fee, shipments of timber and timber products that are being sourced from forest management units participating in the FML Program may show evidence of participation through an official label affixed to shipping containers or batches of timber products and/or through statements on the accompanying documents. Also promotional material and external statements may refer to participation in the FML program.

A sample of the official label indicating participation in the TFF RIL FML Program is shown below.



Throughout the CoC, the origin of timber and timber products from the participating FMU must be guaranteed. Therefore, parties in the CoC must comply with the CoC requirements as formulated in section 4 of the main document. To this end, the TFF Board will rely on third-party declarations of compliance. Any party in the CoC without a positive declaration of compliance will not be granted the right to claim that timber and timber products are sourced from a FML Program participating FMU.

5) Suspension and Withdrawal Procedure

The TFF Board may **suspend** the right of referring to participation in the FML program if there are well-founded indications that the forest operation or any other party in the CoC is not performing in accordance with the TFF RIL Standard or CoC requirements. After a decision to suspend the right of referring to participation in the FML program has been made a procedure will trigger immediate corrective actions by the relevant party.

A decision to **withdraw** the right of referring to participation in the FML program may be made if the TFF Board has been convinced that the relevant party does not comply through a periodic inspection report of a CB, or any other demonstrable factual evidence. If deliberate non-compliance with the Agreement between the manager/owner of the FMU participating in the FML program and TFF has been noted, withdrawal of the right to referring to participating in the FML program follows. Participation in the program will be terminated with immediate effect.

Trading and processing holders of CoC certificates are informed in writing about the suspension or withdrawal of the right to refer to participation in the FML program.

6) Objections and Appeal

Participants in the FML program and/or the CoC may raise objections against TFF Board decisions. The TFF Board will consider such objections and may reconsider its earlier ruling.

If an objection is not accepted by the TFF Board, the objecting party can appeal to an independent Board of Appeals established by TFF. The final decision of the Board of Appeals is binding.

The TFF Board of Directors assigns duties to a TFF Board of Appeals. The Board of Appeals consists of three eminent independent persons, of whom at least one is an attorney. All three members of the Board of Appeals must have a sound understanding of the subject and the legal context. The members of the Board of Appeals have no affiliation or relationship with any of the parties involved in the appeal. The Board of Appeals is authorized to annul the decision of TFF Board and its ruling regarding the resolution of disputes is binding.

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GLOSSARY

accreditation	A procedure by which an authoritative body gives formal recognition that a body or person is competent to carry out specific tasks. (ISO Guide 2)
accreditation body	A body that conducts and administers an accreditation system and grants accreditation. (ISO Guide 2)
audit	Systematic and objective activity to find out the extent to which requirements related to an agreed subject matter are fulfilled. (ISO 9000)
auditor	A person who has the qualification to perform audits. (ISO 9000)
biological diversity	The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems. (see Convention on Biological Diversity, 1992)
bole	A tree stem that has grown to substantial thickness, capable of yielding logs or poles. (FAO)
bucking	The act or process of transversely cutting the stem or branches of a felled tree into logs. (FAO)
certificate	A document issued under the rules of a certification system, providing confidence that a duly identified product, process, or service, is in conformity with a specified standard or other normative document. (ISO Guide 2)
certification	A procedure by which a third party gives written assurance that a product, process or service conforms to specified requirements. (ISO Guide 2)
certification body	An independent third party that assesses and certifies organizations with respect to forest management or chain of custody standards and any supplementary documentation required under the system.
certified forest	A well defined forest area to which an independent certification body has granted certification.
chain of custody (CoC)	The chain of custodians through which products are distributed from their origin to their end use.
choker	A noose of wire rope or chain that is wrapped around a log and then attached to a means of conveyance in order to bring the log to a landing.
criterion	Requirement against which conformity assessment is made.
customary rights	Rights which result from a long series of habitual or customary actions, constantly repeated, which have, by such repetition and by uninterrupted acquiescence, acquired the force of a law within a geographical or sociological unit.
ecosystem	A community of all plants and animals and their physical environment, functioning together as an interdependent unit.
endangered species	Any species which is in danger of extinction throughout all or a significant portion of its range.
environmental impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products and services (ISO 14004)
environmental management system	That part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy of an organization (ISO 14004)
forest hydrology	A science dealing with the properties, distribution, and circulation of water on and below the earth's surface and in the atmosphere

forest manager	An individual or organisation that is responsible for the management planning and supervision of operations in a forest area.
harvesting	The aggregation of all operations, including pre-harvest planning and post-harvest assessment, related to the felling of trees and the extraction of their stems or other usable parts from the forests. (FAO)
harvesting technology	The study or use of scientific and engineering principles in harvesting. (FAO)
indicator	A quantitative or qualitative parameter which can be assessed in relation to a criterion. It describes objectively and unambiguously a relevant element of a criterion.
label	A claim which indicates certain aspects of a product.
off-product label	Information conveyed by a supplier by documentary means other than an on-product label, concerning the nature or classification of the material in a batch.
on-product label	A merchandising label attached to a product or a package of products.
landing	A cleared area where logs are stored prior to transport.
legal origin	Origin that satisfies accepted criteria pertaining to the legal right to harvest. (Legal origin in the context of timber harvest and forest management refers to timber that is not stolen.)
legal compliance	Encompasses all elements of the 'legal origin' concept plus compliance with relevant laws and regulations dealing with forest management and related issues.
legislation	Laws, rules and government prescriptions in the country of origin including laws and rules pertaining to international Treaties and Agreements which have been ratified by the country, or for which compliance is required under international law.
log	Any section of the bole, or of the thicker branches, of a felled tree after limbing and bucking.
logging	Process of felling and extracting timber from forests, especially in the form of logs. (FAO)
monitoring	The collection and analysis of data (indicators), with a view to identify any need for corrective actions to ensure project execution according to plan.
non-timber forest products (NTFP)	All tangible forest products except timber. (including materials obtained from trees such as resins and leaves, as well as any other plant and animal products).
percentage based method	Method by which a proportion of the output volume is recognized as RIL Verified timber which is equivalent to the input proportion of RIL Verified timber.
principle	Fundamental law or rule serving as a basis for reasoning and action
production forest	A forest that is being managed for the production of timber and other products on a sustainable basis.
reduced impact logging (RIL)	Timber harvesting technologies and procedures with the following main objectives: <ul style="list-style-type: none"> ▪ minimize impact on the environment (including wildlife) and related social aspects; ▪ minimize damage to potential future crop trees (including regeneration); ▪ provide safe working conditions; and ▪ improve timber utilization and recovery in the forest.
RIL Verified[®] Mark	Recognition for timber from FMU's, for which compliance with the TFF RIL Standard, the CoC requirements and requirements for legal origin has been verified by an independent third party.
silviculture	The theory and practice of controlling the establishment, composition, care, and development of stands of trees to achieve the objectives of management.
skidding	Terrain transport by which logs are dragged to the landing. (FAO)
skid trail	The pathway over which logs are skidded in a ground-skidding extraction

	system. (FAO)
standard	A document established by consensus and approved by a recognized body that provides, for common and repeated use, rules, guidelines, or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context. (ISO Guide 2)
stakeholder	An individual or group of individuals with an interest, concerned with or affected by the operation of an organization (ISO 14004)
sustainable forest management (SFM)	The stewardship and use of forests and forest land in a way and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil now and in the future, relevant ecological, economic and social functions, at local, national and global levels and does not cause damage to other ecosystems.
TFF Legal/CoC label	Recognition for timber from forest management entity and their forest management units participating in the TFF RIL Forest-Market Linking Program.

ACRONYMS

APHI	Association of Indonesian Forest Concession Holders
CB	Certification Body
CoC	Chain of Custody
EMS	Environmental Management System
FAO	Food and Agriculture Organization of the United Nations
FML	TFF RIL Forest-Market Linking Program
FMU	Forest Management Unit
GFTN	Global Forest & Trade Network
IAF	International Accreditation Forum
ISAFOR	Institution Support & Analysis, Forest & Land Use
ISO	International Standard Organization
ITTO	International Tropical Timber Organization
NGO	Non Governmental Organisation
NTFP	Non Timber Forest Product
RIL	Reduced Impact Logging
SFM	Sustainable Forest Management
TFF	Tropical Forest Foundation
WWF	World Wildlife Fund

BIBLIOGRAPHY

Note: This bibliography contains official publications and gray literature. Most references have served to establish a general broad background for the development of the TFF RIL Standard and the Protocol for Verification.

Asia-Pacific Forestry Commission. 1999. Code of Practice for Forest Harvesting in Asia-Pacific. RAP Publication: 1999/12. Food and Agriculture Organization of the United Nations, Bangkok. (<http://www.fao.org/docrep/004/AC142E/AC142E00.HTM>)

Bodegom, A. van and de Graaf, N. 1991. The Celos Management System: A provisional manual. IKC/NBLF/LNV; Wageningen, The Netherlands: Vakgroep Bosbouw Landbouwniversiteit Wageningen; Stichting BOS. IKC Natuurbeheer, Scientific Information Division.

Dykstra, D. 2004. RILSIM 2.0 User's Guide. Washington, D.C.: USDA Forest Service, August. (<http://www.blueoxforestry.com/RILSIM/>)

Dykstra, D. and Heinrich, R. 1996. FAO Model Code of Forest Harvesting Practice. Food and Agriculture Organization of the United Nations, Rome. (<http://www.fao.org/docrep/V6530E/V6530E00.htm>)

Elias., Applegate, G., Kartawinata, K., Machfudh., and Klassen, A. 2001. Reduced Impact Logging Guidelines for Indonesia. Jakarta: Center for International Forestry Research. (http://www.cifor.cgiar.org/publications/pdf_files/Books/RIL-english/RIL-Inggris-Part-1.pdf)

Enters, T., Durst, P., Applegate, G., Kho, P., and Man, G. 2002. Applying Reduced Impact Logging to Advance Sustainable Forest Management. Asia-Pacific Forestry Commission, International Conference Proceedings, Feb. 26-Mar. 1, 2001, Kuching, Malaysia. Published by Food and Agriculture Organization of the United Nations, Bangkok. (<http://www.fao.org/DOCREP/005/AC805E/AC805E00.HTM>)

FAO Forestry Department. 1998. Forest Harvesting Case Study 11: Reduced Impact Timber Harvesting in the Tropical Natural Forest in Indonesia, Food and Agriculture Organization of the United Nations, Rome. (<http://www.fao.org/docrep/x0595E/x0595E00.htm>)

FAO. 2001. Forest Harvesting Case Study 16: Forest Harvesting Practice in a Timber Concession in Suriname Reduced. Food and Agriculture Organization of the United Nations, Rome. (<http://www.fao.org/docrep/003/Y2698E/Y2698E00.htm>)

FAO. 2006. Regional Code of Practice for Reduced-Impact Harvesting in Tropical Moist Forests of West and Central Africa. Food and Agriculture Organization of the United Nations, Rome.

Holmes, T., Blate, G., Zweede, J., Pereira, R. Jr., Barretto, P., Boltz, F. and Bauch, R. 2000. Financial Costs and Benefits of Reduced-Impact Logging in the Eastern Amazon. Tropical Forest Foundation/U.S. Forest Service. (http://www.tropicalforestfoundation.org/Tom_Holmes_report.doc)

Hout, P van der. 1999. Reduced Impact logging in the Tropical Rainforest of Guyana : Ecological, Economic and Silvicultural Consequences., Wageningen, The Netherlands: Tropenbos International, Guyana Series 6.

ITTO. 2005. International Workshop on Phased Approaches to Certification, April 19-21, Berne, Switzerland. (http://www.dephut.go.id/INFORMASI/FLEGT/umum/sum_d2.htm)

Klassen, A. 2006. Management Considerations for Successful Implementation of Reduced Impact Logging. Fifth Technical Procedures Manual. Tropical Forest Foundation/Center for Forestry Education and Training, Forestry Department of Republic of Indonesia. September. (http://www.tff-indonesia.org/manuals/5th_Manual_ENG.pdf)

Klassen, A. 2006. Operational Consideration for Reduced Impact Logging. Third Technical Procedures Manual. Tropical Forest Foundation/Center for Forestry Education and Training,

Forestry Department of Republic of Indonesia. March. (http://www.tff-indonesia.org/manuals/Operational-Manual_s.pdf)

Klassen, A. 2005. Planning Consideration for Reduced Impact Logging. Second Technical Procedures Manual. Tropical Forest Foundation/Center for Forestry Education and Training, Forestry Department of Republic of Indonesia. August. (http://www.tff-indonesia.org/manuals/PlanningManual-ENG_s.pdf)

Klassen, A. 2006. Planning, Location, Survey, Construction & Maintenance for Low-Impact Forest Roads. Fourth Technical Procedures Manual. Tropical Forest Foundation/Center for Forestry Education and Training, Forestry Department of Republic of Indonesia. May. (http://www.tff-indonesia.org/manuals/Road-Manual_S.pdf)

Klassen, A. and Hasbillah. 2004. Technical Procedures for Topographic Forest Surveys and Tree Mapping Fourth Technical Procedures Manual, 2nd ed. Tropical Forest Foundation/Center for Forestry Education and Training, Forestry Department of Republic of Indonesia. April. (<http://www.tff-indonesia.org/manuals/surveyManual-ENG.pdf>)

Lammerts van Bueren, E.M. 2004. Introduction to the Legal Timber Issue. September. ISAFOR Scherpenzeel, The Netherlands (<http://www.keurhout.nl/english/documents.htm>)

Lammerts van Bueren, E.M. and Blom, E.M. 1997, Hierarchical Framework for the Formulation of Sustainable Forest Management Standards, P, C & I. Tropenbos International, Wageningen, The Netherlands. (<http://www.tropenbos.org>)

Parren, M.P.E. 2003. Lianas and Logging in West Africa. Wageningen, The Netherlands: Tropenbos International, Cameroon series 6. (<http://library.wur.nl/wda/dissertations/dis3449.pdf>)

WWF International. 2006. Keep it Legal: Best Practices for Keeping Illegally Harvested Wood Out of Your Supply Chain. July. (http://assets.panda.org/downloads/keep_it_legal_final_no_fsc.pdf)

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