CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

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Sixteenth meeting of the Plants Committee
Lima (Peru), 3-8 July 2006

Tree species

STANDARD PROCEDURE FOR THE MEASUREMENT OF LOGS AND SAWN WOOD OF TIMBER SPECIES INCLUDED IN APPENDICES II AND III

1. This document has been submitted by the Management Authority of Italy.

2. CITES provisions require that the quantity of specimens indicated in the permit or certificate matches the quantity being imported.

3. Resolution Conf. 12.3 (Rev. CoP13), on Permits and certificates, in its Annex 1, contains the information that should be included in CITES permits and certificates, indicating in paragraph j) *"The quantity of specimens and, if appropriate, the unit of measure used"* and in paragraph p) *"The actual quantity of specimens exported, certified by the stamp or seal and signature of the authority that carried out the inspection at the time of the exportation"*.

4. While verifying that the quantity reported on the permit and the one actually imported match can be a relatively simple procedure for the vast majority of species included in the Appendices, (provided that controls are made at the time of import), it can prove difficult for timber.

5. Timber is an hygroscopic material and therefore subject to possible changes of volume depending on the atmospheric humidity. It frequently happens that the quantity of timber arriving at the final destination does not correspond with the quantity registered on the CITES permits or certificates issued and endorsed by the competent (re-)exporting authorities.

6. These discrepancies can create a major loophole in the legal trade of which unscrupulous traders can take advantage for illegal activities, and may lead to a complication of the bureaucratic and administrative procedures for Customs officers and enforcement personnel. This is of major relevance in combating illegal trade in timber.

7. Several international or regional organizations, such as the Association Techniques des Bois Tropicaux (ATIBT, International Technical Tropical Timber Association), International Standard Organization (ISO) and Comité Européen de Normalisation (CEN) have issued rules outlining a standard procedure to determine the volume of a timber shipment.

8. These procedures are summarized in the Annex to this document, which also contains a draft guide on how to perform controls at the time of import.

9. With the aim to start a discussion on how to implement and improve the actual provisions of Resolution Conf 12.3 (Rev. CoP13), Italy is submitting this document to the Plants Committee so that the Committee start to analyse this issue in view of the 14th meeting of the Conference of the

Parties, where a decision is sought to give a mandate to the Plants Committee to further discuss the issue.

10. If the Committee agrees to the above, Italy will prepare a document for the next meeting of the Conference of the Parties, including a draft decision directed to the Plants Committee to develop a process to analyse the system of measurement for timber species and its implications for the implementation of the Convention.

MEASUREMENT OF LOGS AND SAWN WOOD OF TIMBER SPECIES INCLUDED IN APPENDICES II AND III

Every time that a shipment of CITES-listed timber species enters a port in an importing country, a standard checking procedure should be carried out by Customs and enforcement personnel. In particular, it would always be necessary to verify that:

- The documents presented at import refer to the actual shipment controlled.

- The timber species declared in the CITES documentation correspond exactly to the imported, exported, re-exported and transiting specimens.

- The description of goods on the CITES documentation corresponds exactly to the controlled specimens.

- The imported, exported, re-exported or transiting quantities of the specimens effectively correspond to the declared quantities on the CITES documentation, taking into account the measurement system outlined below.

Wood is an hygroscopic material that tends to balance its humidity with that of the atmosphere, going from values of over 100 % at the moment of logging to values below 10 % when processed and stored in a closed warm place.

Water loss and re-absorbing processes also called shrinking and swelling, actually take place continuously, depending on the variability of environmental conditions. It is furthermore important to consider that water within wood moves in different directions with respect to its anatomical grain, causing warps, cracks and other relevant defects in the material.

International and regional standards organizations, such as ATIBT, compensate these discrepancies, especially when measuring the dimensions of rough and semi-finished materials, by utilizing commonly accepted ‘tolerances’, which take into account, in relation to the various timber batches, the influence of humidity on both the actual changes in volume and the changes caused by warping and other defects.

In determining the volume of a lot of timber subject to CITES regulations, the different annotations with which the species is included in the Appendices of the Convention have to be taken into account.

Therefore, depending on the species traded and its specific annotation, all or just some parts and derivatives are to be controlled.

For species listed in the Appendices of the Convention with annotation #1, all parts and derivatives are to be included in the determination of the volume. On the other hand, for species with annotation #5 or #6, the derivatives like pallets or bundles are not to be included in the calculation of the volume. These elements (pallets, sticks, sleepers (?), covers or protections) that can be easily distinguished thanks to their appearance and dimensions, are often made of the same timber species of the controlled shipment but are usually obtained as side products of the production cycle. This is mainly a technical habit due to the fact that the contact with a different timber species may cause serious damage to the transported material because of a different behaviour of the timber species with respect to the moisture content and to the eventual presence of wood extracts causing bleaching, spots, moisture spots, rotting etc.

The volume of a batch containing CITES-listed timber species can be determined by measuring the single elements of the batch or by taking samples.

The dimensions to be measured in case of logs are diameter and length.

The dimensions to be measured in the case of sawn timber elements and semi-finished products are thickness, width and length.

In the case of end products, the information on the accompanying CITES documentation must be verified as follows:

- quantity: register the number of elements in the batch
- cubic metres: always register length first, then diameter or thickness and width
- square metres: register length and width
- metres: register length
- kilograms/quintals/tons: register weight

The instruments utilized to measure the dimensions of the products, taking into account the methods for calculating specific cases such as logs, sawn timber elements and peeled veneer, must guarantee a minimum level of accuracy, as follows:

DIAMETER: must be measured with an instrument accurate to 1 mm.

WIDTH: must be measured with an instrument accurate to 1 mm.

LENGTH: the length of logs must be measured with an instrument accurate to 10 mm; the length of sawn timber elements and peeled veneer must be measured with an instrument accurate to 1 mm.

THICKNESS: the thickness of sawn timber elements must be measured with an instrument accurate to 1 mm; the thickness of peeled veneer must be measured with an instrument accurate to 1/10 mm.

The documentation accompanying the shipment, including the packing list, must be analysed before measuring the volume of the batches.

If the packing list is missing, and no other document which could accurately identify the contents of the batch is available, it will be necessary to measure the entire batch.

If the packing list is available, measurement by sample can be carried out, following the sampling plan showed in Table 1. Valid sampling can only be done on homogeneous batches, therefore it is first necessary to verify that the contents contained in the batch correspond to the packing list itself, in terms of species, type of product and quantity of elements (single or aggregated) for every type.

Table 1: Sampling plan

N° of elements per batch	**N° of samples to be measured**
2 – 8	2
9 – 15	2
16 – 25	3
26 – 50	5
51 – 90	8
91 – 150	13
151 - 280	20
281 - 500	32
501 - 1200	50
> 1201	80

Methods of measurement and determination of a single element's volume

Logs

The volume of a log, according to the *Règles de classement des rondins et des sciages tropicaux* (Classification rules for tropical logs and sawn wood), elaborated by the ATIBT (Association Techniques des Bois Tropicaux, International Technical Tropical Timber Association) can be determined by using the following formula:

$$V = \frac{\pi \times D^2 \times L}{4}$$

Where:

V = volume expressed in cubic metres, rounded to three decimal places;

D = average diameter, or the average value, expressed in metres and rounded down to the lower cm, of 4 diameters, taken in pairs: the first pair known as d1 and d2; the second pair known as d3 and d4, measured on each of the two end grains, the top ends of the log (see figures 1 and 2). In order to choose exactly where to measure the above diameters on each end, it is necessary to consider the largest circular form that could be drawn within the end section. The two diameters to be measured must be the shortest possible diameter and the longest possible diameter of the above circle, measured perpendicularly at their point of intersection, which passes through the exact centre of the circle considered. The four diameters must be measured under the bark (i.e. excluding the bark), over the sapwood (i.e. including the sapwood), avoiding any possible irregularities present on the cut.

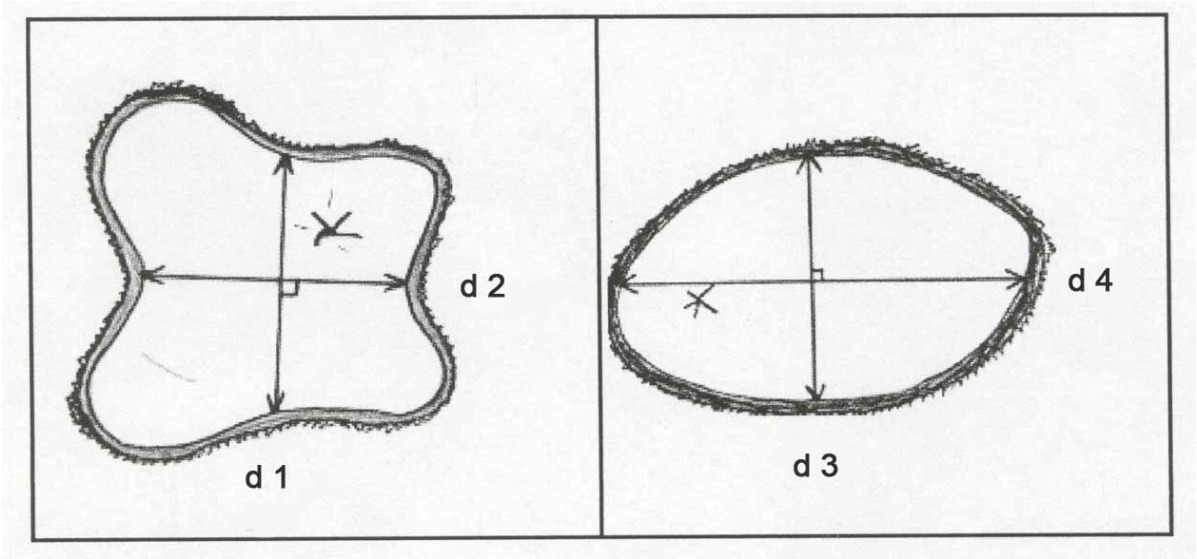

Figure 1: Measuring the diameter

Figure 2: Measuring the diameter

In the case of certain timber species, whose sapwood tends to rot easily, the sapwood should be excluded when measuring the diameters.

When determining volumes, a maximum crosscut allowance of 3 % per lot is permitted and those parts of the log with evident defects are not measured (see figure 3).

Figure 3: Defective log

Sawn wood (unedged and square edged)

The volume of a piece of sawn wood can be calculated by using the following formula:

V = b x t x l

Where:

b = width measured at the narrowest point, expressed in metres and rounded down to the lower mm. In the case of unedged sawn pieces whose thickness exceeds 50 cm, the length must be measured at the midpoint of the thickness.

t = thickness measured at the narrowest point of the piece, expressed in metres and rounded down to the lower mm.

l = shortest distance between the two end grains of the piece, expressed in metres and rounded down to the lower cm.

When measuring widths, the commonly used crosscut allowances are those mentioned in EN 1313-2 *Round and Sawn Timber. Permitted deviation and preferred sizes. Hardwood sawn timber* with a modified procedure related to moisture variation, as indicated in paragraph 5 of the norm:

b $\leq$ 100 mm	6 mm plus 4 % of b
b > 100 mm and b < 200 mm	9 mm plus 4 % of b
b > 200 mm	12 mm plus 4 % of b

When measuring thicknesses, the crosscut allowance with respect to the nominal dimension is as follows:

t $\leq$ 32 mm	3 mm plus 5 % of t
t > 32 mm	4 mm plus 5 % of t

When measuring lengths, the crosscut allowance is 3 %; however, it should not exceed 90 mm.

Semi-finished and finished products

Considering the great variability in dimensions and shape of such products, the measurement and calculation of the volume in these cases are to be carried out according to the instructions on the accompanying CITES documents.

Determination of the volume of a timber batch

Logs

The volume of a batch of logs is determined by adding up the volumes of each single element to obtain a total sum.

Sawn timber

The volume of a batch of sawn timber is likewise determined by adding up the volumes of each single element to obtain a total sum.

Lot consisting of sawn timber elements in which all the elements have the same dimensions

After having taken the necessary number of samples as specified in Table 1, the volume of a lot consisting of sawn timber elements with the same nominal dimensions can be determined by first measuring the dimensions of the samples, then obtaining the total volume by multiplying the average volume of the samples by the number of elements in the lot.

Batch of sawn timber elements of identical thickness and width but with different lengths

The volume of a batch of sawn timber elements of identical thickness and width but of different lengths is determined by first measuring the length of every element, then measuring the thickness and width of the necessary number of samples as specified in Table 1, then finally obtaining the total volume of the batch by multiplying the average width by the average thickness of the samples and by the total sum of the measured lengths.

Batch of sawn timber elements of identical thickness and length but with different widths

The volume of a batch of sawn timber elements of identical thickness and length but of different widths is likewise determined by first measuring the width of every element, then measuring the thickness and length of the necessary number of samples as specified in Table 1, then finally obtaining the total volume of the batch by multiplying the average thickness by the average length of the samples and by the total sum of the measured widths.

Batch of sawn timber elements of identical thickness but with different widths and lengths

If it is possible to subdivide the batch into groups of elements of the same length, the volume of each group can be determined by measuring the width of every element in each group and the thickness and length of the necessary number of samples as specified in Table 1. In this case, the volume of every group can be obtained by multiplying the average thickness by the average length of the samples and by the total sum of the measured widths in each group. The total volume of the entire batch is finally obtained by adding up the volumes of all single groups.

Ensemble of sawn timber elements with different thicknesses, widths and lengths

If it is possible to divide the ensemble of sawn timber elements into groups with one or more identical dimensions, one of the above mentioned methods can be used to determine the volume.

Boule

The volume of a boule formed by elements of homogeneous thickness can be determined by measuring the total width (Σ b), and the thickness and length of the necessary number of samples as specified in Table 1. The total width, or width of all the elements forming the boule, or of the series of successive elements originating from the same boule, of equal length and thickness, is measured at an equal distance from the two ends, perpendicular to the axis, without considering the bark. The total width is thus calculated by adding up the widths of the upper faces of every unedged element. The widths of the upper faces of each unedged element are expressed as AA', BB', CC', DD', EE', …., MM' (see figure4).

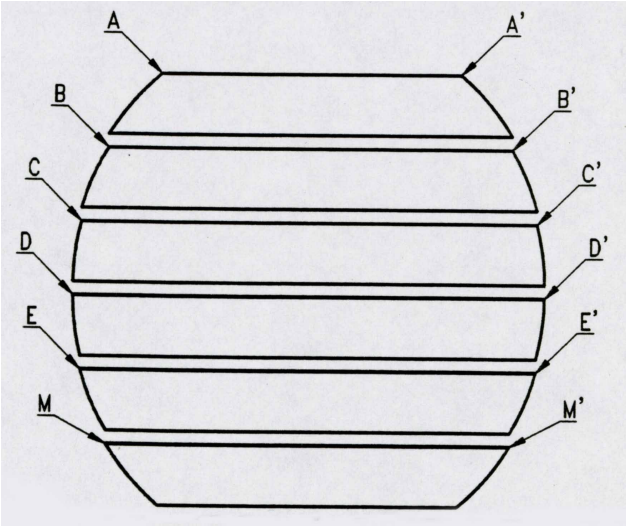

Figure 4: Volume of a boule

The volume of the boule is then determined by multiplying the total width thus obtained by the average thickness by the average length of the samples.

In the case of a boule with elements of different thicknesses, the total volume must be obtained by adding up the volumes of all the groups whose elements are of homogeneous thickness.

Verification of regularity

When verifying whether the measured volumes correspond to the quantities declared in the accompanying documents, the following annexed schemes may be useful:

Checking form – Logs (Annex 1)

Checking form – Sawn wood (Annex 2)

Annex 1

Checking form – LOGS

LOGS

IDENTIFICATION OF THE LOT
IMPORTER
PROVIDER
SHIP/WAGON/CONTAINER

TIMBER SPECIES

NUMBER OF DECLARED LOGS	
NUMBER OF LOGS FOUND	
NUMBER OF LOGS TAKEN AS SAMPLES	

SAMPLE LOG NUMBER	1	2	3	4	5	6	7	8	9	10
LOG IDENTIFICATOR										
Dn = NOMINAL DIAMETER (m)										
d1 (m)										
d2 (m)										
d3 (m)										
d4 (m)										
Dm = AVERAGE DIAMETER (m) [d1 + d2 + d3 + d4] / 4										

Ln = NOMINAL LENGTH (m)										
L = MEASURED LENGTH (m)										
Lc = CALCULATED LENGTH (m) [L-Sl]										

Vn = NOMINAL VOLUME (m3)										
Vc = CALCULATED VOLUME (m3) [3,14xDcxDcxLc/4]										

Note: To calculate the volume of the entire lot a maximum crosscut allowance of 3 % is permitted and those parts of the log with obvious defects are not measured.

Annex 2

Checking form – SAWN WOOD

SAWN WOOD

LOT IDENTIFICATION
IMPORTER
PROVIDER
SHIP/WAGON/CONTAINER

TIMBER SPECIES

NUMBER OF DECLARED LOTS
NUMBER OF LOTS FOUND
NUMBER OF SAMPLED SAWN WOOD PIECES

SAMPLE NUMBER	1	2	3	4	5	6	7	8	9	10
tn = NOMINAL THICKNESS (m)										
t = MEASURED THICKNESS (m)										
St = CROSSCUT ALLOWANCE										
tc = CALCULATED THICKNESS (m) [t-St]										

bn = NOMINAL WIDTH (m)										
b = MEASURED WIDTH (m)										
Sb = CROSSCUT ALLOWANCE										
bc = CALCULATED WIDTH (m) [b-Sb]										

ln = NOMINAL LENGTH (m)										
l = MEASURED LENGTH (m)										
Sl = CROSSCUT ALLOWANCE [3 % ln]										
lc = CALCULATED LENGTH (m) [l-Sl]										

Vn = NOMINAL VOLUME (m3)
Vc = CALCULATED VOLUME (m3) [tcxbcxlc]