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SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE
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Item 3 (a) of the provisional agenda
Methodological issues
Good practice guidance for land use, land-use change and forestry (LULUCF) activities under the Kyoto Protocol, harvested wood products and other issues relating to LULUCF

Issues relating to harvested wood products

Submissions from Parties

1. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its nineteenth session, invited Parties to submit to the secretariat, by 15 April 2004, their views on issues relating to harvested wood products, taking into account the information contained in the technical paper FCCC/TP/2003/7 and Corr.1, and the appendix on harvested wood products to the report of the Intergovernmental Panel on Climate Change (IPCC) entitled *Good Practice Guidance for Land Use, Land-use Change and Forestry*. It noted that these submissions could include national data and methodological and other information on changes in carbon stocks and emissions of greenhouse gases relating to harvested wood products, stating the approach or approaches used for this purpose.

2. The secretariat has received seven such submissions. In accordance with the procedure for miscellaneous documents, these submissions are reproduced[*] in the language in which they were received and without formal editing.

[*] These submissions have been electronically imported in order to make them available on electronic systems, including the World Wide Web. The secretariat has made every effort to ensure the correct reproduction of the texts as submitted.

CONTENTS

PAPER NO. 1: CANADA

METHODOLOGICAL ISSUES RELATED TO LAND USE, LAND-USE CHANGE AND FORESTRY ISSUES: HARVESTED WOOD PRODUCTS

3 May, 2004

1. INTRODUCTION

At the nineteenth session of the Subsidiary Body for Scientific and Technological Advice (SBSTA), the Parties were invited to submit, by 15 April 2004, their views on issues relating to harvested wood products (HWP), for consideration at its twentieth and twenty-first sessions (paragraph 27(e), FCCC/SBSTA/2003/15). The SBSTA also agreed that these views would be taken into consideration when it decides, at its twentieth session, on the scope of a workshop on harvested wood products to be held prior to its twenty-first session.

This submission provides Canada's views in three sections:

1. General views on HWP and objectives of inventorying emissions from HWP;
2. Views on the scope and terms of reference of the SBSTA workshop; and
3. Views on the Technical Paper (TP) prepared by the UNFCCC Secretariat (FCCC/TP/2003/7 and Corr.1) entitled Estimation, reporting and accounting of harvested wood products.

An Annex provides estimates for Canada using various HWP approaches and methodologies. The estimates are based on Canada's 2002 national GHG inventory submission. Assumptions and methodologies are described.

In this submission, the term "estimation" (or "estimating") is taken to mean the process of calculating (a quantity). The term "accounting" refers to the rules applied for comparing emissions and removals, against any legally binding emission reduction commitments assumed by Parties. This is consistent with the terminology used in the TP (paragraph 16).

2. GENERAL VIEWS ON HWP

Canada believes that the ultimate goals of HWP estimation, reporting and accounting will have to be properly debated and agreed to, so that all have a common understanding of what we are collectively trying to achieve. The workshop should allow for that discussion to happen.

There is general agreement that the current default approach to estimating and reporting of HWP, as described in the IPCC Revised 1996 Guidelines for National GHG Inventories is not accurate and may lead to policy decisions that will not benefit the atmosphere. Several alternative approaches are being discussed. Within approaches, several estimation methods can be used. There is a need to agree on methods that could be applied to different approaches. For example, Appendix 3a.1 to the IPCC report on Good Practice Guidance for Land Use, Land-Use Change and Forestry (GPG –LULUCF) suggests one estimation method (stock-based) that could be applied to alternative approaches (stock-change, production and atmospheric flow). Then, once methods are addressed, Parties can discuss what approach(es) should be used. One question is whether different approaches could or should be used for GHG inventories reporting as compared to future accounting under the Kyoto Protocol or other agreement.

Regardless of the approach taken for meeting any mandatory emissions limitation targets, the overall goal of a more complete, accurate and consistent estimating and reporting system must be maintained for all sources and sinks within a national inventory, including for GHG emissions from HWP. The primary objective of national inventory guidelines and good practice guidance, which should include methodologies for estimating emissions from wood products, is to improve the accuracy and completeness of GHG inventories. In that sense, we think a proper attribution ideally quantifies emissions where and when they occur. This not only meets the completeness and accuracy principles of good practice but it is consistent with the treatment of other sources in national inventories. It also helps in identifying the cause of emissions, and provides better information for assessing policy responses. Furthermore, it is clear that in many cases, a change in C stocks does not represent an actual emission to, or a removal from, the atmosphere.

Finally, Canada strongly believes that the practicality and applicability of the approaches and methods are critical, given that data availability is often a limiting factor to Parties, especially with respect to HWP. This is particularly true for non-Annex I Parties.

3. VIEWS ON SBSTA WORKSHOP

Canada looks forward to the SBSTA workshop on harvested wood products, to be held prior to SBSTA21, and thanks the Government of Norway for offering to host it. Canada is also pleased to offer some funding support for the workshop.

The workshop will be an opportunity for Parties to discuss and clarify the objectives of estimating, reporting and accounting of emissions from harvested wood products. It will allow SBSTA to make progress on resolving issues identified in the TP and Parties' submissions.

A common understanding of the HWP approaches and, in particular, the corresponding estimation methodologies, is essential to have a meaningful discussion of the approaches and their implications. Given the technical complexity of the issue, it is important that Parties have a common understanding as the basis for deciding on the most suitable approach(es) for estimation and accounting. To facilitate these discussions, experts engaged in the production of the TP and Appendix 3a.1 of the IPCC report on GPG-LULUCF should be invited to the workshop. As well, the relevant authors involved in the Revision of the 1996 IPCC Guidelines for national GHG inventories should be invited to the workshop.

The workshop should be technical and pragmatic in order for Parties to improve their common understanding of the alternative approaches and methodologies for HWP emissions estimation and accounting, and the socio-economic and environmental impacts, including impacts on developing countries. The issues noted in the conclusions of the TP (paragraphs 121-127) are one basis for the workshop discussion. Canada proposes the following objectives and terms of reference for the workshop.

<u>Objectives</u>

1. Agree on the objective(s) of inventorying GHG emissions from HWP.
2. Elaborate and clarify estimation and accounting scope.
3. Elaborate and clarify estimation and accounting options and their implications, including socio-economic and environmental impacts.

<u>Terms of Reference</u>

The workshop should include technical discussions of:

i. Alternative approaches and methodologies for harvested wood products estimation and accounting, including the "simple decay" (Ford Robertson, 2003), the TP and the methodologies described in Appendix 3a.1 of GPG-LULUCF;

ii. Issues and options for the potential scope of harvested wood products estimation and accounting, including in relation to, inter alia, the transformation of wood from one product category to another, the sensitivity of estimates to the start year including for estimating inherited emissions and decay patterns, the treatment of waste and of non-wood fibres; and

iii. The possible way forward and action by SBSTA.

Canada looks forward to working with other Parties at SBSTA 20 to further elaborate on the scope of the workshop and to reach agreement on terms of reference to aid the secretariat in planning the agenda for this event.

4. VIEWS ON THE TECHNICAL PAPER AND ON HWP IN IPCC GOOD PRACTICE GUIDANCE FOR LULUCF

4.1 General

Canada is grateful to the Secretariat and the contributing authors for preparing the Technical Paper (FCCC/TP/2003/7 and FCCC/TP/2003/7/Corr.1) on estimating, reporting and accounting of harvested wood products, taking into account socio-economic and environmental impacts, including impacts on developing countries. The TP provides some useful background information and represents a good basis for discussions in upcoming SBSTA sessions as well as the workshop. Appendix 3a.1 of GPG-LULUCF also provides useful guidance as a basis for future methodological development.

The paper analyses the various approaches in terms of how estimates compare with 1990 emission levels and emission limitation targets under the Kyoto Protocol across countries (paragraphs 62-64 and Annex III). Canada has the following comments. First, the key point of such comparisons is that the different approaches can have very different impacts across countries, in particular for large net exporting countries as compared to importing countries. Second, the comparisons of HWP estimates with Kyoto Protocol first commitment period are not meaningful. This is because the TP assumes HWPs are not accounted for in the first commitment period targets, the treatment of LULUCF activities in future commitment periods could differ from the treatment in the first period, and for many countries HWPs are relevant only if forest management is included in their accounting.

With respect to paragraphs 62 to 64, Canada suggests that the feasibility and the desirability of treating HWP as a "separate" activity should be evaluated carefully. It is unclear what an activity called "management of wood products" would really mean and its relation to what takes place in the forest. A complete LULUCF inventory of emissions and removals in the new IPCC GPG-LULUCF category "Forest land remaining forest land" requires an estimate of emissions resulting from harvesting (to account for the on-site decay of residues etc.). Furthermore, the conversion of forest land to other lands could also include the estimation of emissions from HWP arising from those lands. This raises the broader issue of whether HWP emissions estimates can be completely dissociated from LULUCF activity estimates, especially in the context of accounting rules. For example, if forest management were not included in accounting of a country, including "management of HWP" as a stand-alone activity would raise the risk of unbalanced accounting.

4.2 Interpretation of approaches

When Canada compared its interpretation of the various approaches with that used in the TP and Pingoud (2003) as well as Appendix 3a.1 of GPG-LULUCF, it noticed some differences in the application of methods and approaches. This illustrates that there remains a need for Parties to come to a common understanding of the approaches and the methods underlying them.

With respect to the interpretation of the atmospheric flow approach, Canada does not use carbon (C) stock change calculations to estimate emissions and removals under this approach, contrary to what is done in the TP and in Appendix 3a.1 of GPG-LULUCF. Canada estimates emissions by adding all C fluxes to the atmosphere i.e. decay of post-harvest residues (slash), retirement of HWP in use, off-site biomass burning etc. From our point of view, the atmospheric flow approach is not just a different combination of stock changes. It is an entirely different approach that accounts for all C fluxes to and from the atmosphere from the forest and the different steps in the HWP life cycle. In many instances, C stock changes in the reservoir of HWP-in-use have little to do with actual CO_2 emissions to or removals from the atmosphere. Only the decomposition or burning of HWP or their waste has a direct link to atmospheric emissions.

Figures 7 and 8 of the TP are directly borrowed from the sources cited (Brown et al., 1999 and Lim et al., 1999). In these figures, the arrow linking the forest and HWP pools, and labelled "wood production", raises great confusion. Is wood production equivalent to the variable PHA or H in GPG-LULUCF equation 3a.1.1 ? There is a need to clarify what is included in the terms "wood production" and "wood consumption" in the context of all approaches. If the "wood production" quantity is equivalent to the C in the primary product pool only, then it incompletely represents the amount of C removed from the forest. In the Annex to this submission, some flow charts illustrate Canada's understanding of the approaches and the various values that "wood production" and "wood consumption" could take. All these issues also highlight the need for a clarification of the meaning of the "harvest" quantities in the equations and description of methods.

Canada would also like to note that the treatment of wood pulp, an intermediary product in paper manufacturing, and also a market commodity, deserves some careful consideration.

4.3. Market effects

The TP provides a useful analysis of the market effects and impact on trade of each of four approaches (the IPCC default approach and the three Dakar approaches) in Chapter IV by examining prices, demand and supply. The simplifying assumptions used in the analysis have significant impacts on the conclusions. These major assumptions include:

- Consuming countries do not produce wood products within national boundaries;
- Producing countries export 100 per cent of their production to consuming countries;
- No distinction between Annex I and non-Annex I countries. This distinction will be a crucial factor in reality as it would provide different incentives for trade.
- Countries are compelled to reduce emissions resulting from forest harvesting and/or the decay of wood products only through reductions in production or consumption of wood products. There is no consideration of other emission reduction options that are available to Parties; and
- Wood products are a homogeneous commodity and the market effect of substitute materials is not taken into account. In reality, there will be different demand and supply implications for each major wood product.

In paragraph 93, the TP concludes: “It is unlikely that reporting and accounting of WP would be a major factor determining prices and quantities of wood and wood products traded”. Canada agrees that other economic and policy factors will have a significant impact on prices and trade. In particular, domestic policies and measures will ultimately affect industry and consumer behaviour. However, Canada also believes that the impact of different HWP accounting approaches for individual countries will depend on the size of production and trade and the importance of LULUCF, and in some instances the accounting of HWP could impact on quantities produced and traded.

4.4 Scope

The TP identifies several relevant issues related to the scope, including the definition of ‘wood products’ (e.g. do they include recycled fibre, secondary wood products, wood and paper products in landfills) and the treatment of existing stocks (e.g. starting year for estimating/accounting). Other products not made of wood such as strawboard can also store carbon for long periods of time. The scope must be clarified in order to have a common basis for comparing alternative approaches and methodologies.

4.5 “Simple decay approach”

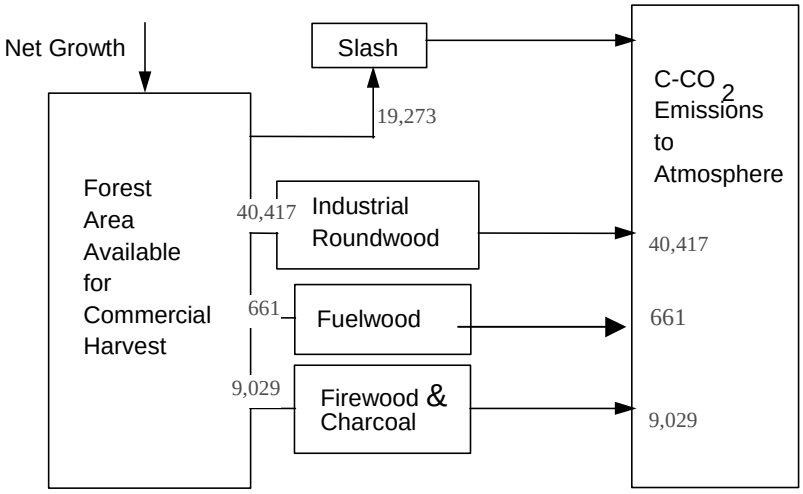
Canada acknowledges the “simple decay approach” (Ford-Robertson, 2003) as briefly described in the TP as an innovative and useful addition to the discussions. This approach can be viewed as an alternative method to the methodologies described in the Dakar report and Appendix 3a.1 of GPG-LULUCF. This simple decay method illustrates how a flux-based estimation method could be applied to different approaches. The merits of this simple methodology include limited data requirements and its focus on emissions rather than stocks. More analysis is required to understand how this method relates to others and how it could be applied. Canada supports including this methodology in future discussions, including at the workshop.

Annex

CO_2 Emission Estimates According to Four HWP Approaches Applied to Canada for the year 2000

(Unless otherwise specified, all figures indicate C fluxes, in Gg C)

Figure 1 Current IPCC approach:



Emissions
E = 40,417 + 19,273 + 661 + 9,029
= 69,380 Gg C
= 254,394 Gg CO2

Harvest emissions = IRW harvested + slash oxidization + fuelwood harvested + firewood collection

Growth is net of natural disturbances i.e. equivalent to total biome production

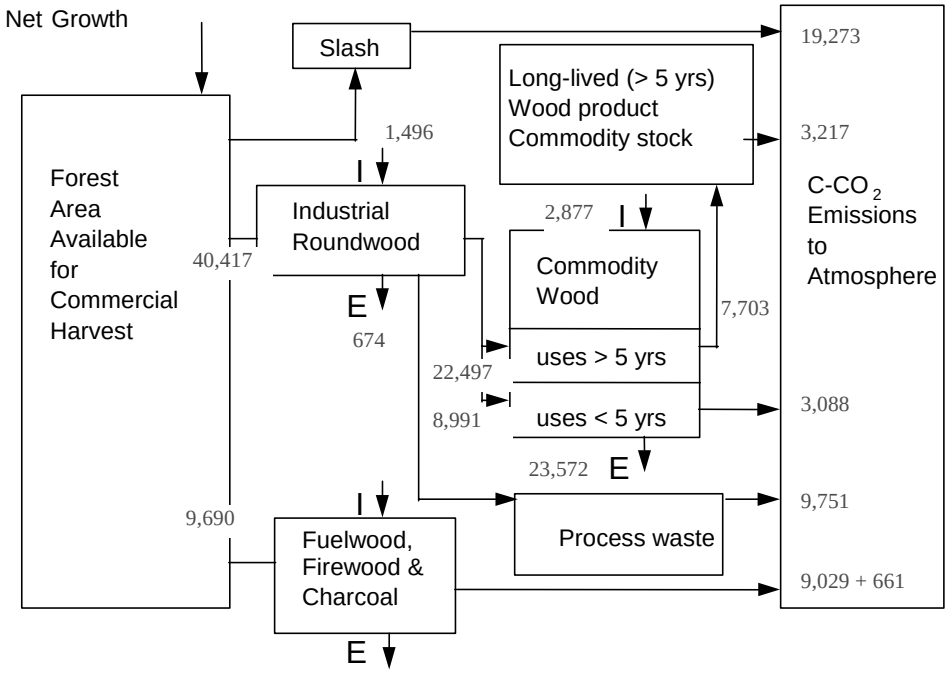
Industrial Roundwood (IRW) = Sawnwood + Wood-base Panels + Pulpwood + Other Ind. Roundwood

Firewood : wood used for domestic heating.

Fuel wood: wood, including cull logs, branches, etc., used to fuel fires in a boiler or furnace for industrial or institutional needs.

Figure 2 Atmospheric flow approach:

Harvest emissions = fuelwood harvested + slash oxidization + firewood collection + (total IRW consumption - total commodity production) + short-lived commodity consumption + inherited emissions from long-lived commodity consumed



E = 661 + 19,273 + 9,029 + (40,417 + 1,496 -674) – (22,497 + 8,991) + 3,088 + 3,217

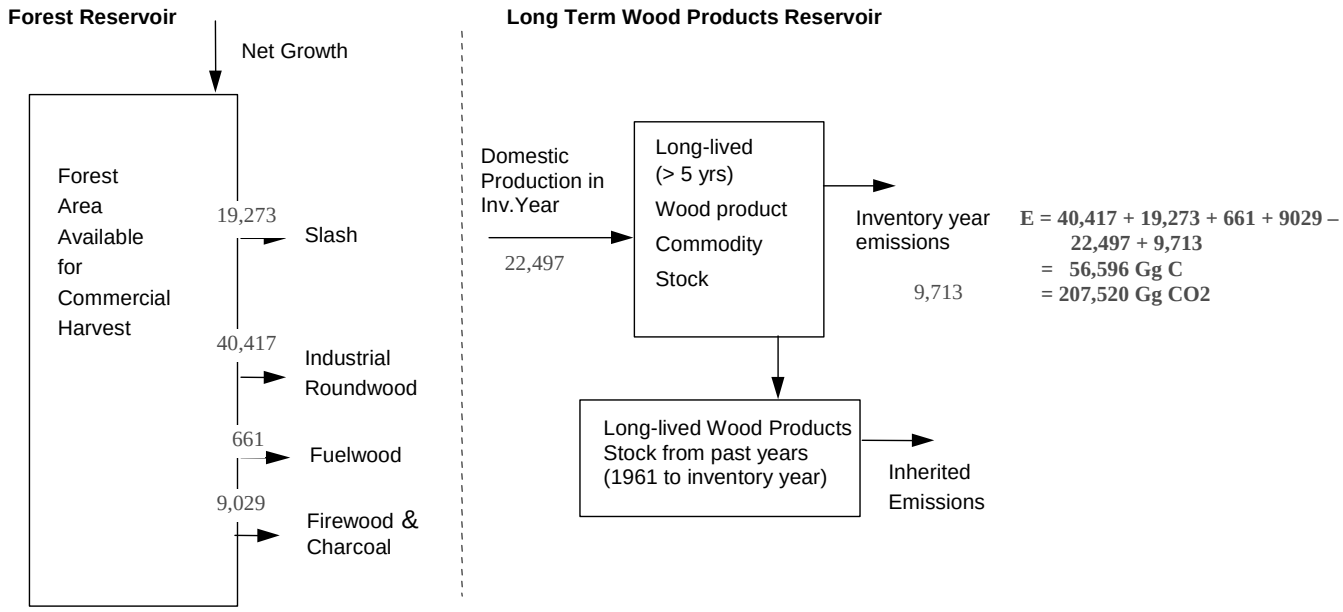
= 45,020 GgC
= 165,074 Gg C02

Does “Wood production” (as per TP figures 7 and 8) equal total wood harvested (50,107 kt C) or industrial roundwood harvested (40,417 kt C)?

Does “wood consumption” equal industrial roundwood consumption (41,239ktC) or commodity consumption (10,793 kt C)?

Figure 3 Production approach:

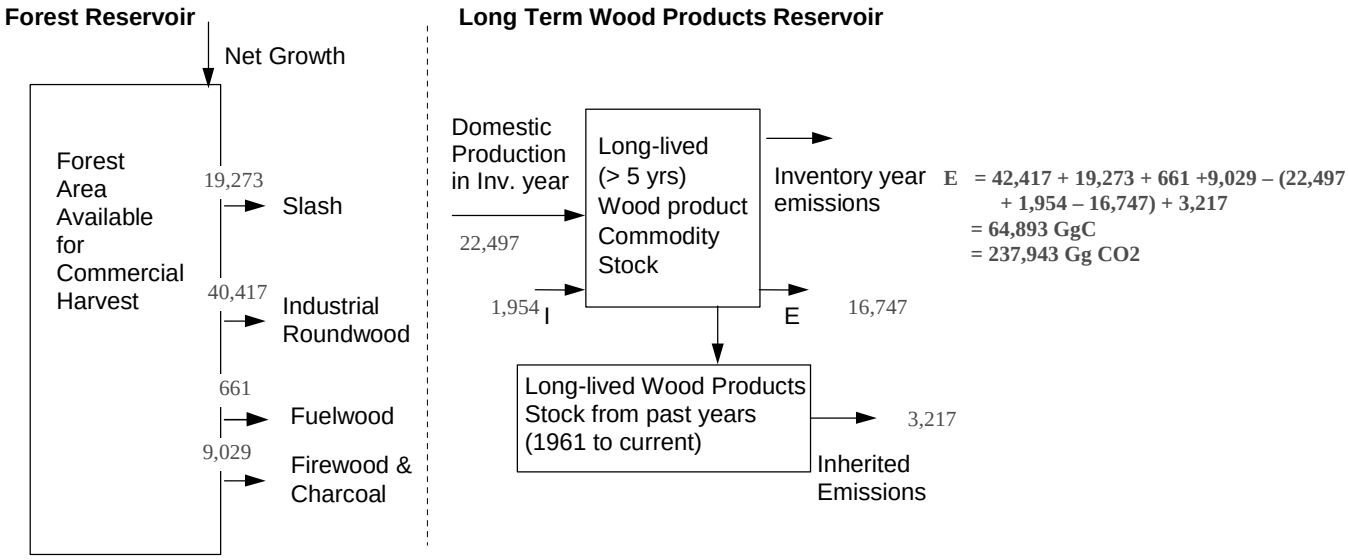
Harvest emissions = IRW harvested + slash oxidization + fuelwood harvested + firewood collection - total commodity production + inherited emissions from commodity produced



Does “Wood production” (as per TP figures 7 and 8) equal total wood harvested (50,107 kt C) or industrial roundwood harvested (40,417 kt C) or commodity produced (22,497 kt C)?

Figure 4 Stock-change approach:

Harvest emissions = IRW harvested + slash oxidization + fuelwood harvested + firewood collection - C in long-lived commodity consumed domestically + inherited emissions from domestic long-lived commodity



Does “Wood production” (as per TP figures 7 and 8) equal total wood harvested (50,107 kt C), industrial roundwood harvested (40,417 kt C) or commodity produced (22,497 kt C)?

In this diagram, “wood consumption” equals “commodity consumed” (i.e. domestic production + imports – exports of long lived WP commodity) (7,703 kt C).

The difference between the stock and production approaches is accounted for by the net trade of long-lived wood products minus the difference in inherited emissions. The difference between the atmospheric flow and the stock change approaches is accounted by: exports of long-lived products (16,747 GgC in 2000), but also because in the stock method the production of short-lived commodities (8,991 GgC) is equivalent to emissions, while in the flow approach, only their consumption (2,764 Gg C) results in emissions.

Notes (applicable to all Figures)

Commodity data (import, export, production) were downloaded in the week of January 1, 2001 from the FAO online Forestry Database, except for market pulp data which was obtained from the Market Pulp Producer Association.

Inherited emissions: unless otherwise specified, for all non-current methods the inherited emissions are based on the C stored in long-lived wood products during the last 30 years (FAO wood commodity data are available from 1961 onwards).

Decay rates are linear over the period. All solid wood products (industrial roundwood commodities) have a decay of 0.013 yr-1 (total lifespan of 75 years, e.g. 45 years of use and 30 years in disposal/reuse on average). Pulp and paper products have an annual decay rate of 0.033 (lifespan of 30 years).

Fraction in long-term (> 5 years) use: sawnwood 0.8, wood-based panels 0.9, other industrial roundwood 0.7, paper & paperboard 0.6 and market wood pulp 0.6. In the last 2 categories, it is assumed that 0.2 of products remain in use for over 5 years, and 0.4 are stored in landfills.

PAPER NO. 2: INDIA

SUBMISSION TO SBSTA

(FCCC/SBSTA/2003/L.21)

Harvested Wood Products

India has taken note of the developments in the context of the Harvested Wood Products (HWP) from the SBSTA document FCCC/TP/2003/7 and the IPCC Good Practice Guidance on LULUCF. These two documents have advanced the understanding of the methods and approaches available for accounting HWP. However, these two documents provide inadequate information and understanding of the implications of different approaches/methods to timber importing and exporting non-Annex-I countries. India suggests the following strategy for addressing HWP:

1. SBSTA need to prepare an integrated guidance document incorporating the accounting methods / approaches given in SBSTA document *"FCCC/TP/2007"* and the very detailed *"IPCC Good Practice Guidance on LULUCF"*. Currently it is difficult to understand the implications of approaches and methods given in these two documents. Information given is adequate for decision making or negotiations.

2. There is a need for better understanding of the implications of different definitions, concepts and accounting methods to roundwood (timber) exporting and importing Annex-I and non-Annex-I countries for;
   - GHG inventory estimation and reporting
   - CERs and ERUs from LULUCF projects

3. SBSTA should first discuss and agree on the definitions and classification of wood products and concepts relating to timing and place of accounting (when and where), whether to account for old stocks, trade in wood products etc. Once there is an agreement on the definitions and concepts, then the accounting methods could be explored and negotiated. Thus a two-step approach is suggested to SBSTA to address and negotiate the complex issues related to HWP.

   Step 1: A negotiating document or a working paper focusing only on the definitions and concepts to be prepared and circulated by the UNFCCC before SBSTA – 21.

   Step 2: A working paper could be prepared by the UNFCCC on the accounting methods and reporting guidelines for SBSTA 22 (after agreeing on the definitions and concepts).

4. UNFCC could prepare a compilation of how HWP is accounted and reported by the parties (largely Annex-I) under the national GHG inventories.

PAPER NO. 3: IRELAND ON BEHALF OF THE EUROPEAN COMMUNITY AND ITS MEMBER STATES AND SUPPORTED BY THE FOLLOWING ACCEDING STATES AND CANDIDATE COUNTRIES: LATVIA, SLOVENIA AND ROMANIA

SUBMISSION BY IRELAND ON BEHALF OF THE EUROPEAN UNION AND ITS MEMBER STATES ON VIEWS ON ISSUES RELATED TO HARVESTED WOOD PRODUCTS, AS INVITED BY SBSTA IN FCCC/SBSTA/2003/L.21

THIS SUBMISSION IS ALSO SUPPORTED BY THE FOLLOWING ACCEDING AND CANDIDATE COUNTRIES: LATVIA, SLOVENIA AND ROMANIA.

Dublin,

Background

The *IPCC 1996 Guidelines for National Greenhouse Gas Inventories* assume as a default that stocks of carbon in harvested wood products do not increase over time, and recommend specific inclusion of estimates in national inventories only where countries can show that stocks of long term forest products are increasing. The *IPCC Good Practice Guidance for LULUCF* sets out in detail calculation methods for the various stocks involved, but does not deal with accounting rules for allocation, which is a policy matter because of issues associated with the trade in wood products, sustainable forest management, and use of wood as fuel.

The EU is aware that estimation and reporting of harvested wood products could include carbon stocks associated with imports of illegally felled timber. The EU emphasises the importance of addressing the issue of illegally felled timber and notes and encourages the work underway in other forums.

For orientation the EU notes that the annual increase in global carbon stocks of harvested wood products is estimated to be between 26 and 139 million tonnes of carbon per year[1], or between 0.5% and 2.2% of Annex I greenhouse gas emissions in 1990.

Timetable for consideration

The EU recalls that, in accordance with the timetable agreed in Marrakesh, the SBSTA will discuss issues related to harvested wood products at its twentieth and twenty-first sessions. The EU notes that this timescale would allow careful consideration of the treatment of harvested wood products for the second commitment period under the Kyoto Protocol. Carbon pools to be accounted for the first commitment period have already been agreed, and do not include harvested wood products. For UNFCCC purposes, Parties should of course continue to report on harvested wood product pools consistent with the advice in the *IPCC 1996 Guidelines*, and may for this purpose use the estimation methods set out in the *IPCC 2003 Good Practice Guidance for LULUCF*, since these methods may be applied to any of the accounting methods under discussion. If, following the discussion at SBSTA 21, consensus is reached on a particular estimation method for UNFCCC reporting purposes, then Parties would use it subsequently to the agreement. The experience gained in using the GPG will be useful when the role of HWP in future commitment periods is considered.

[1] FCCC/TP/2003/7 (see page 10)

Views on the Technical Paper

The EU thanks the Secretariat for the technical paper, as requested by SBSTA at its fifteenth session, entitled *Estimation, Reporting and Accounting of Harvested Wood Products*[2]. The EU also thanks the experts who assisted in its preparation. This paper will be a useful input to the workshop, as well as to further discussions on harvested wood products that the Secretariat will organise prior to the twenty-first session of SBSTA.

The EU agrees with the description in the paper of the system boundaries for stock change, production and atmospheric flow approaches to accounting harvested wood products. The EU notes the discussion of the so-called simple decay approach, and agrees with the paper that this approach is really a simplified version of the production method. The EU sees no particular advantage in assuming only one average decay time for the entire timber harvest. The EU therefore suggests that the simple decay method need not be considered further.

Having studied the paper the EU still believes that the stock change method is the most promising for further consideration. This is because:

1. the atmospheric flow method, by treating wood products like fossil fuels at the point of use for energy purposes, does not encourage use of wood as a biofuel. This applies not only to imported timber; it would also complicate at the project level the incentive structure for using domestically produced wood as fuel (either directly or as part of waste disposal strategy), and set undesirable precedents for the use of other biofuels;

2. the production method allocates to timber exporting countries changes in carbon stocks that occur in timber that has been sold to other countries. The EU believes that the act of sale should transfer the rights and responsibilities associated with the carbon contained in the timber. The production method also introduces additional uncertainty into greenhouse gas inventories because the assumed decay lifetimes for exported timber might or might not apply to the use made of the timber in importing countries;

3. the EU strongly disagrees with the claim in the Technical Paper that the stock change method discourages use of wood for energy production. This is because wood grown specifically for the purpose of energy production is grown with the expectation that it will be used in this way, rather than simply to increase carbon stocks. Moreover any average increase in carbon stocks on the land used to grow wood for energy production would be counted, and fossil fuel displacement would be obtained continuously under sustainable harvest cycles.

The HWP workshop

The EU, reiterating

i. that harvested wood products pools should not be included for the first commitment period under the Kyoto Protocol, and

ii. that Parties remain entitled, for UNFCCC purposes, to report on Harvested Wood Products in a manner consistent with the IPCC 1996 Guidelines,

iii. its belief that the stock change approach is the most promising for future consideration,

[2] FCCC/TP/2003/7

suggests that the Workshop scheduled to be held before the twenty-first session of SBSTA should, as part of the overall negotiations on issues related to LULUCF, focus on accounting methods to be agreed for future use, and their relationship to sustainable forest management and the sustainable substitution of fossil fuels by wood biomass. The workshop should also consider the following technical issues:

1. wood product classification (whether this is to be based on species or end-use categories),

2. inventory methods and the availability of data,

3. feasibility and costs of inventory and reporting,

4. the accuracy and uncertainties associated with HWP estimation,

5. the potential impact of accounting methods on wood harvesting and Harvested Wood Products (HWP) uses and trade, and

6. the relationship between the waste sector and LULUCF.

PAPER NO. 4: JAPAN

JAPAN'S VIEW ON ISSUES RELATED TO HARVESTED WOOD PRODUCTS

Japan welcomes the invitation by SBSTA to comment on the issues related to Harvested Wood Products (HWP). Japan also appreciates the secretariat for the development of the technical paper on these issues (FCCC/TP/2003/7).

In considering carbon accounting of HWP as a significant carbon reservoir, Japan would like to reiterate following basic points which were discussed in our view submitted in January 2003 (FCCC/SBSTA/2003/MISC.1); (a) contribution to prevention/mitigation of global climate change, (b) appropriate incentives to promote sustainable forest management, (c) equity between producing and consuming countries, and impacts on international HWP trade, (d) impacts on developing countries, (e) scientific and methodological issues such as data requirements and measurement methods, (f) compatibility with relevant provisions of the Kyoto Protocol, (g) incremental costs associated with the application, and (h) other impacts such as impacts on sustainable forest management and wood product utilization. For detailed comments, please refer to FCCC/SBSTA/2003/MISC.1.

In particular, Annex III of the technical paper (FCCC/TP/2003/7) indicates that some Annex I countries might gain more sink credits than their emission reduction commitments in the first commitment period of the Kyoto Protocol by applying some new carbon accounting methods. Japan would like to reiterate that such substantial gains in sink credits due to the mere change of accounting method might bring a lot of misunderstandings and confusion.

Taking these points into account, Japan would like to further contribute to the discussion on the issues related to HWP toward the second commitment period.

PAPER NO. 5: NEW ZEALAND

HARVESTED WOOD PRODUCTS

10 May 2004

Summary

New Zealand notes that there has been increasing interest from a number of parties in Harvested Wood Products (HWP) accounting in recent times.

New Zealand considers that parties should first seek agreement on principles related to what parties may wish to achieve with HWP's and then discuss the accounting options in relation to these principles. A set of potential principles are identified in this submission.

New Zealand appreciates the invitation by SBSTA [refer FCCC/SBSTA/2003/ L.21 paragraph 5] to comment on the issues of Harvested Wood Products (HWP) accounting.

New Zealand welcomes the opportunity for presentation/discussion at the expert workshop and/or SBSTA21. The workshop presents an opportunity for parties to discuss principles related to HWP, and evaluate the alternative accounting models against the principles.

HWP accounting is a complex issue. New Zealand considers that it is important to further develop the policy relating to the issue, which has been outstanding since the mid-1990's.

As an appendix to this submission, a more detailed description of the issues and a discussion of the approaches including the Simple Decay Approach, which New Zealand believes has merit. This approach focuses on more accurately reporting emissions of carbon from the above ground biomass pool following harvesting, rather than estimating changes in the HWP pool.

PROCESS FOR ADDRESSING HWP ACCOUNTING

Wood products retain carbon even after trees have been harvested. In some cases there will be a significant extension of the time before the carbon is released back to the atmosphere. This is not clearly addressed under the current climate accounting rules. The default assumption in the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (1996 Guidelines) is that all the carbon contained in trees is released at harvest. This is based on the assumption that global stocks of carbon in wood products are not increasing. The 1996 Guidelines state that this assumption "is clearly not strictly accurate in the case of some forest products, but is considered a legitimate, conservative assumption for initial calculations"[1].

New Zealand notes that the treatment of harvested logs is inconsistent with the treatment of other biomass. Guidance for forests in the *GPG LULUCF* includes a default Tier 1 assumption of instant oxidation of all carbon at harvest. At higher Tiers, Parties are encouraged to include parameters to calculate emissions over time from burning and decay of biomass after harvest, except logs. The instant oxidation assumption remains for harvested logs removed from site, with no higher Tier methods provided.

[1] 1996 IPCC Guidelines Reference Manual, page 5.17

New Zealand notes that the treatment of harvested forests is also inconsistent with the treatment of other fossil fuels. Emissions from forest harvesting occur in the country of harvest whereas emissions from fossil fuels occur in the country of use.

New Zealand considers that the Kyoto Protocol or the Marrakech Accord rules do not provide the basis for a definitive treatment for handling the emissions from harvested wood products, including during the first commitment period (CP1). We have been unable to find a decision by the SBSTA or the COP consciously agreeing to or adopting the commonly accepted default assumption that all carbon is released at harvest, regardless of the use, particularly given that the IPCC 1996 Guidelines provide one approach that countries could use if they chose to do so[2].

New Zealand is not aware of any formal elaboration on the current recommended default assumption for harvested wood products, apparently because the process to date has been inadequate and unable to address the issue of how to account for HWP. There may be more merit in focussing on the timing of emissions instead, as suggested in the IPCC 1996 Guidelines.

The 1996 Guidelines contemplate some form of "reporting" by Parties on their carbon stocks in HWP, but no methods for doing so are provided. As already noted, nor do the Marrakesh Accords provide useful elaboration. However, the COP may still wish to address the treatment of HWP "reporting" in CP1. Decision 11/CP.7 paragraph 4, which records the decision that *any changes to the treatment of harvested wood products shall be in accordance with future decisions of the Conference of the Parties* suggests that Parties wanted to resolve outstanding issues on LULUCF prior to making decisions on the policy issues relating to HWP. Paragraph 4 does not specify that these decisions would only relate to future commitment periods. It is arguable therefore that there is still an opportunity for future decisions of COP to address the treatment of HWP "reporting" in CP1 under the UNFCCC.

Also, the Marrakesh Accords do not make provision for accounting of HWP in respect to carbon credits and liabilities under the Kyoto Protocol in CP1, as a result of the policy issues on HWP not being addressed at the SBSTA. For example, paragraph 21 of the Annex to Draft decision-/CMP.1 (*Land Use, Land Use Change and Forestry*)[3] describes the carbon pools within which changes shall be accounted for by Parties, but wood products are not identified as a pool. New Zealand's recollection of the negotiations on the Marrakesh Accord is that it proposed that the door be left open to wood products being included as a pool subject to further consideration of the issue by the COP, but that a number of other Parties objected to the proposal. The text reflects the agreement reached. Therefore it appears that HWP accounting is not contemplated during CP1 under the current rules unless the Marrakesh Accord is re-litigated (which New Zealand does not support).

Although HWP accounting is considered not to be an issue for CP1, it needs to be clarified for commitment period two (CP2) and, if it is to be undertaken the methodology needs to be agreed. A decision on whether to undertake HWP accounting may depend on how the negotiations proceed and what is included in future agreements. New Zealand is of the view that we need to start work on HWP accounting issues and methods now to feed into the CP2 negotiation process. Otherwise the current situation will prevail into CP2, with insufficient development of alternatives and implications and no formal decisions being taken.

New Zealand reiterates the view that the policy issues need to be addressed formally by the SBSTA and the COP, rather than via Good Practice Guidance (GPG) or other fora. As the issue of harvested wood products is still to be decided upon by the SBSTA, it is not good process to include it in the LULUCF

[2] 1996 IPCC Guidelines Reference Manual, page 5.17
[3] FCCC/CP/2001/13/Add.1

GPG when only some of the possible approaches are identified that Parties to the UNFCCC might agree upon.

New Zealand notes that the process from here is:

- for submissions from the current round to be considered by SBSTA at its twentieth and twenty-first sessions including the need, if necessary for greater consistency in accounting for exports and imports;
- that SBSTA requested the secretariat to organise a workshop, subject to availability of supplementary funding, on harvested wood products before the twenty-first session of SBSTA and to prepare a report of the workshop for consideration at that session;
- SBSTA decided that the scope of the workshop on harvested wood products will be agreed at the twentieth session.

HWP CHALLENGES TO BE ADDRESSED

New Zealand reiterates that challenges that need to be considered in addressing HWP accounting. Some of the key challenges are outlined below. Much of the consideration to date has not addressed these issues.

1) Complexity versus Simplicity

A disincentive to some countries fully engaging in the Kyoto Protocol appears to be the complexity of reporting and accounting requirements they are required to meet. Addressing emissions from harvesting and HWP will add to this problem. Complexity needs to be addressed when considering the various issues and methodologies involved with HWP accounting. It is necessary to seek a simple yet robust methodology and solution.

2) Data

The three accounting approaches (stock change, atmospheric flow and production) developed in Dakar all require data, and will require models to estimate atmospheric impact.

Readily available and verifiable data are required on carbon coming into the products pool (e.g., harvest volumes, residue flows, imports); on the products themselves (e.g., density, carbon content, lifetime); and on carbon leaving the products pool by various means (e.g., bioenergy, landfill, recycling). While the inflows tend to be reliable, product aggregation into larger 'general' pools (e.g., sawn timber, pulp, paper, board) may reduce the accuracy of the product stocks.

Lifetimes of products are much more difficult to ascertain and they may change dramatically and rapidly according to a range of factors (e.g., economic prosperity, building codes, fashion) and determining the fate of products once they have served a useful life is also challenging. Hence, while the inflows are relatively well known, the accuracy of the stocks and flows of carbon thereafter is more uncertain. However, reliable data is available on trade between countries. Hence it can be a simple exercise to verify for example that carbon harvested in the producing country will not be released there, but in the consuming country. Use of certification processes is increasing and it is necessary to have robust and verifiable chain of custody procedures in place, which help ensure accuracy of data.

3) Which Products to Account For

The SBSTA would need to make policy decisions on which products to account for (e.g., long-lived products like timber, short-lived products like tissue paper, all products produced or only those since 1990, wood products in landfills, etc.). The decisions on which products to account for will affect the complexity of and ease of implementing the accounting requirements. Another issue is how to deal with recycled products in an accounting methodology.

4) Producer versus Consumer

Complications occur for HWP accounting where products are exported/imported. The different possible HWP accounting approaches pose differing trade related issues and may lead to different outcomes. Some possible approaches require the producing country to account for carbon emissions from HWP that have ended their useful life. Other approaches would require the consuming country to account for the emissions. The different approaches will lead to differing incentives for countries to reduce consumption or extend the life of products, thereby achieving different environmental outcomes. HWP accounting has the ability to influence the behaviour of the forest industry, world forestry trade and consumers alike in relation to the release of carbon.

5) Trade Related Challenges

Wood is of low energy intensity and, with appropriate management, an environmentally sustainable product. A trade issue to be considered relating to HWP accounting is the potential for wood products to be disadvantaged compared to non-wood alternatives that are more energy intensive to produce, are made of non-renewable materials and are not subject to an emissions regime. This is particularly the case where those materials have been produced in countries not subject to emissions obligations. The result could be price signals to move away from wood to less environmentally desirable products. Consideration of HWP should therefore be done alongside consideration of other competing products. Policies affecting land use and energy will also have an impact.

AN APPROACH BASED ON PRINCIPLES AS A FIRST STEP

New Zealand reiterates that a sensible way forward is to establish a framework of principles to guide the work on HWP accounting and subsequent negotiations. The framework may include principles stating that the HWP accounting approach should:

- focus on readily obtainable, verifiable data that is accurate and scientifically credible;

- be easy to understand and as simple as possible to implement while still achieving the desired outcomes;

- lead to changes in behaviours to encourage outcomes consistent with the UNFCCC and Kyoto Protocol;

- provide no disincentive to the trade in forest products from sustainably managed forests;

- provide incentives for the use of wood from sustainably managed forests as compared with non-sustainable alternatives, to help achieve the climate change objectives;

- promote a reduction in CO2 emissions to the atmosphere and does not give rise to an allowed increase of overall emissions to the atmosphere;

- provide for a viable approach that is workable in practice, as well as being logical in methodology;

- have environmental integrity; and

- be cost effective to implement.

There may be additional topic areas that require principles.

There is also a need for market pragmatism, realising that principles that may hold in the situation where all countries are covered by the rules may not be feasible in practice when they are not. Unless care is taken the principles may lead to adverse environmental outcomes and unacceptable dislocations of the international market in forest products.

A TIERED APPROACH

In practice the principles could be implemented in a number of ways, such as by using a tiered approach. The tiers could be:

Tier 1: assume emissions at harvest (current IPCC default)
Tier 2: utilize national statistics on harvesting and conversion to estimate year 1 losses. Provide default decay periods for different categories (one or more) of products. Assume all emissions occur at the same rate regardless of final destination.
Tier 3: Enhance Tier 2 wherever possible e.g. improved categories of products, national statistics on end-use products and their lifetimes, verification of uses of exported products etc.

NEXT STEPS

New Zealand is of the view that further work is required:

- by Parties to develop a framework of principles to guide the development and assessment of options for HWP accounting, at a workshop to follow SBSTA 20;
- by Parties to identify a range of potential options for HWP accounting, including but not limited to the five options currently on the table (default assumption, stock change, atmospheric flow and production approaches, simple decay approach), particularly with a view to identifying simplified options;
- by the SBSTA to further consider (informed by the work in the first two bullet points) HWP accounting and reporting at its twentieth and twenty-first sessions, with a view to recommending any relevant decisions to the COP and COP/MOP, for application in CP2.

Appendix to New Zealand Submission 10 May 2004

Harvested Wood Products Accounting

Introduction

This paper focuses on the official guidance and objectives of reporting and accounting for emissions. It presents a simple approach and assesses its ability to satisfy objectives.

Overview of forest and processing stocks and flows

The major interactions between the forest sector and the atmosphere are illustrated in Figure 1. The sector includes forests, processing plants, and wood products. As well as the biotic carbon flows, fossil fuels may be used in all parts of the sector. There are also indirect impacts of forestry, if alternatives are considered e.g. forests versus other land use options, the use of bioenergy instead of fossil fuels, and use of wood products rather than non-wood alternatives.

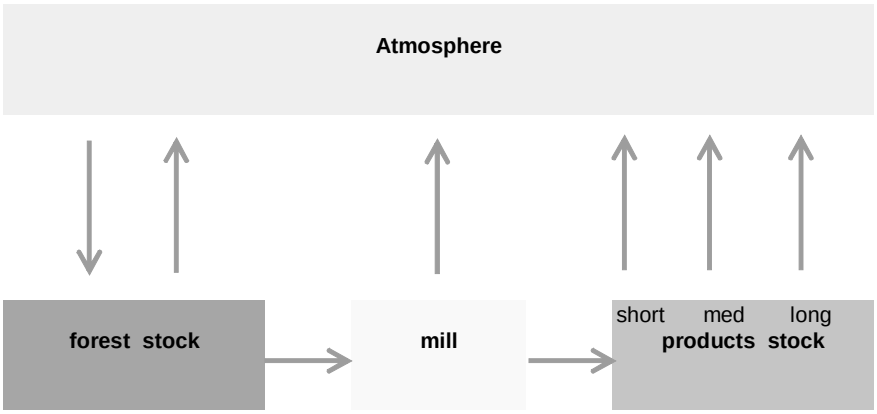


Figure 1. Major forest industry stocks and flows. Only the forest qualifies as a sink under UNFCCC definitions (downward arrow). Sources arise from harvesting residues, processing residues and wood products, from disposal/decay or use for energy (upward arrows). Transfers also occur between pools within the terrestrial carbon pool (horizontal arrows).

Sinks, sources and reservoirs are defined by the UNFCCC:

A **SINK** is any process, activity or mechanism that removes a GHG, an aerosol or a precursor to a GHG from the atmosphere.

A **SOURCE** is any process, activity or mechanism that releases a GHG, an aerosol or a precursor to a GHG into the atmosphere.

A **RESERVOIR** means a component or components of the climate system where a greenhouse gas is stored.

Applying these definitions to the forest sector, the forest is the only part of the sector that could qualify as a sink. Sources include the decay of residues in the forest, processing losses (could include bioenergy), and the decay of forest products (in use or in disposal sites). Wood products are not sinks since they do not remove a greenhouse gas from the atmosphere, although the size of the reservoir may change.

Forestry under UNFCCC and Kyoto Protocol

The primary reference that gives guidance to Parties on the treatment of forestry is Chapter 5 of the IPCC 1996 Revised Guidelines (hereafter referred to as the *IPCC Guidelines*).

The Reference Manual of the *IPCC Guidelines* summarises the impacts of forestry in terms of sources and sinks. It recognizes forestry may be a source or a sink and provides the following guidance:

> *The simplest way to determine which, is by comparing the annual biomass growth versus annual harvest, including the decay of forest products and slash left during harvest. Decay of biomass damaged or killed during logging results in short-term release of CO_2. For the purposes of the basic calculations, the recommended default assumption is that all carbon removed in wood and other biomass from forests is oxidised in the year of removal. This is clearly not strictly accurate in the case of some forest products, but is considered a legitimate, conservative assumption for initial calculations.*

This clearly indicates there is an issue regarding the timing of emissions resulting from forest harvesting. In the absence of other data and information, the default assumption is instant oxidation of all harvested carbon removed from site. The discussion of this issue (provided in Box 5) provides further clarification:

> *Harvested wood releases its carbon at rates dependent upon its method of processing and its end use: waste wood is usually burned immediately or within a couple of years, paper usually decays in up to 5 years (although landfilling of paper can result in longer-term storage of the carbon and eventual release as methane or CO), and lumber decays in up to 100 or more years.*

Atmospheric impact is reported to the UNFCCC in national inventories of anthropogenic emissions by sources and removals by sinks. Given the guidance above this would best be reported as:
Atmospheric impact = SF – DF – LM – DP
Where

SF = sequestration in the forest
DF = decay of residues in forest
LM = losses at mills during processing (burnt to waste or used for energy)
DP = decay of products (related to lifetime in use or in disposal sites)

The stock change approach for forests can be seen as the first step, since it integrates the in-forest components. However, rather than reporting emissions of all carbon in harvested wood at once, the same amount of carbon is reported as emissions over an extended time period.

The time applied can be determined by a range of factors such as characteristics of the timber harvested, type of processing and of products manufactured. For example, the difference between the carbon in harvested volume and that in manufactured products could be assumed to be emitted instantly, the carbon in paper could be released over (or after) 5 years, and sawn timber over (or after) 20 years. Reporting on this type of time frame will still account for all emissions, and is still likely to be conservative (i.e. report emissions earlier than in reality), but is more accurate than the default assumption. This is the simple decay approach that is described in the *IPCC Guidelines*. It is based on sound science, and can account for the reversal of removals from selected activities at an appropriate point in time, i.e. addresses the issue of permanence.
A key issue is the allocation of responsibility for emissions. To avoid confusion due to inconsistent use of terminology the following may be useful:

attribution - the scientific accounting of emissions and removals.
allocation - the assignment of responsibility for emissions and removals.

Greenhouse gas inventories are largely based on correct attribution (e.g. emissions from fossil fuel consumption and agriculture are reported where and when they occur). Most emissions can readily be

attributed to the causal processes e.g. trees sequester carbon and burning/decaying forest products release carbon, but the IPCC default approach for forests allocates the emissions from harvested wood to the producer rather than the consumer of forest products. If the default approach is to be improved upon, Parties will need to choose whether to retain current allocation over a more accurate timeframe as described in the *IPCC Guidelines*, or to shift the responsibility to the consumer country as in other sectors.

Alternative approaches to the IPCC Default

Four related issues have been identified in the sections above:

- timing of emissions from harvesting (at harvest or delayed)
- how emissions are estimated (directly or as stock changes)
- responsibility for emissions (grower or consumer)
- application at different scales (project to national)

There are four approaches for accounting for emissions from harvesting and wood products which can be compared primarily in terms of how emissions are estimated, and how emissions are attributed or allocated. These are summarised in Table 1. Each approach described below satisfies different objectives. It is for the Parties to select an approach. New Zealand suggest that the decision should be based on a clear set of agreed principles identified by the Parties.

Table 1. Matrix of approaches for determining emissions from harvesting and wood products

Estimates of:	**When and where**	**When**
Changes in stocks	Stock change	Production
Emissions	Atmospheric flow	Simple decay

Three alternatives to the IPCC default were proposed and discussed at an expert workshop in Dakar. The fourth option, the Simple Decay approach, was proposed more recently[4] in response to submissions by Parties.

The Dakar approaches are known as the Stock Change, Production, and Atmospheric Flow approaches. These were described in the meeting report[5] as follows:

Stock Change approach - This estimates net changes in carbon stocks in the forest and wood-products pool. Changes in carbon stock in forests are accounted for in the country in which the wood is grown, referred to as the producing country. Changes in the products pool are accounted for in the country where the products are used, referred to as the consuming country. These stock changes are counted within national boundaries, *where* and *when* they occur.
Production approach - This also estimates the net changes in carbon stocks in the forests and the wood products pool, but attributes[6] both to the producing country. This approach inventories domestically produced stocks only and does not provide a complete inventory of national stocks. Stock changes are counted *when*, but not *where* they occur if wood products are traded
Atmospheric Flow approach - This accounts for net emissions or removals of carbon to/from the atmosphere within national boundaries, *where* and *when* emissions and removals occur. Removals of carbon from the atmosphere due to forest growth are accounted for in the producing country, while

[4] MAF, 2003
[5] Brown *et al*., 1998
[6] Comment: this should perhaps read “allocates” to avoid confusion between attribution and allocation.

emissions of carbon to the atmosphere from oxidation of harvested wood products are accounted for in the consuming country.

The Simple Decay approach can be described in similar terms:
Simple Decay approach - This also estimates the net emissions or removals of carbon to/from the atmosphere *when*, but not *where* they occur if wood products are traded. Removals of carbon from the atmosphere due to forest growth, and emissions resulting from forest harvesting are accounted for in the producing country.

APPROACHES ESTIMATING CHANGES IN STOCKS
At the global level reporting stock changes in all forests and products should reflect the atmospheric impact, if all products are included and all countries participate and report in a consistent manner. Issues arise if there is a desire to identify emissions from particular activities (e.g. ARD, FM, GM), countries (Annex I or non-Annex I), or time periods (before or after 1990).

The stock change approaches (i.e. Stock Change and Production) both include stock changes in the forest which are determined by assuming instant emissions of all harvested carbon. They appear to be an extension of the existing IPCC default approach by focussing on changes in product stocks. If the product stock increases, it is considered to be a removal of carbon from the atmosphere, which 'offsets' the assumed emissions at harvest. The timing issue identified in the *IPCC Guidelines* is not directly addressed by these stock change approaches, since the reversal of a removal by a sequestration activity is still assumed to occur at harvest.

If the forest stock change is supplemented by the product stock change there is effectively no link between forest harvesting and HWP. Forest harvesting is assumed to represent an emission of the total carbon harvested. Inputs to the HWP stock are considered to be an atmospheric removal. Estimates of net stock increases in products in use globally vary widely from around 40 to 139 TgC/yr[7]. It has been estimated that the Stock Change approach for wood products could increase the amount of 'sequestration' in Annex I countries by 210 MtC/yr with a further 90 MtC/yr in non-Annex I countries[10]. The value will be higher if carbon stocks in disposal sites are included.

In forests, stock changes can be applied at different scales e.g. individual stands, forests or countries, because these can be identified and measured using conventional techniques. The same scale independence does not apply to forest products. It is difficult to quantify emissions resulting from particular activities, countries or time periods by measuring the change in product stocks. Product stocks include virgin and recycled wood/fibre from local or international sources, sustainable harvesting and deforestation activities. Their time in use and disposal methods will vary widely depending on product characteristics and a wide range of socio-economic and environmental factors.

If all carbon in a forest stand is assumed to be oxidised at harvest, the stock change approach in forests accounts for all potential future emissions of carbon dioxide. This means that, to avoid double counting, all CO_2 emissions resulting from wood product manufacture, use and disposal are noted but not 'counted' in national inventories. This is how bioenergy can enjoy its 'emission-free' status. This would be unaffected by the stock change approaches.

The difference between the Stock Change and Production approaches is in allocating responsibility for emissions. The former reflects correct attribution for changes in stocks, whereas the latter allocates responsibility to the grower, reflecting the reality that there is no sink in products. At the national level,

[7] **UNFCCC Technical Paper** FCCC/TP/2003/7 27 October 2003. **Estimation, Reporting And Accounting Of Harvested Wood Products.**
[8] IPCC. 2000. Land-use, land-use change and forestry. A Special Report of the IPCC. Cambridge University Press.

therefore, the Production approach will reflect the atmospheric impact of national forest management by offsetting some of the 'emissions' at harvest by 'removals' in products even if products are exported. However, the Stock Change approach may provide better incentives to Parties to manage their wood product stocks and delay the release of carbon back to the atmosphere.

Since emissions are identified from changes in stocks, there is a need to either conduct inventories of products, or to identify all flows into and out of the product pool. Inventories may be difficult to conduct in practice for many products, and would not be able to readily separate products in terms of their source activity, country, or year of production. If a flows approach is adopted, all flows in and out of the pool must be accounted for or a 'false' result will be created. For example, if only products manufactured after 1990 are included, this will create the impression of a large sink when in reality the new products are unlikely to all be additional to the existing product pool.

The stock change approaches are different from the accounting approach for fossil fuels which does not look at changes in stocks, but exchanges of carbon with the atmosphere.

APPROACHES ESTIMATING EMISSIONS

The emissions approaches address a key principle in the Marakesh Accords[9], that the "reversal of any removal due to land use, land-use change and forestry activities be accounted for at the appropriate point in time". Thus, rather than report an emission of 100% of harvested carbon at harvest, emissions are more accurately reported according to harvest and processing data e.g. 50% in year 1, 30% after 5 years and the remaining 20% after 20 years. The time in use is difficult to determine but can be estimated conservatively to be more accurate than the IPCC default, but not so long as to overstate the likely duration.

These approaches also acknowledge that products represent a potential source rather than a sink. Changes in above-ground biomass must be accounted for unless 'information is provided that the pool is not a source'. Harvesting can dramatically change above-ground biomass stocks, and is almost inevitably (going to be) a source at the stand level.

The treatment of carbon from wood products does not differ from that of fossil fuels. If the wood is domestically produced and consumed, both flows to and from the atmosphere are accounted for in the same country.

WHEN EMISSIONS OR STOCK CHANGES OCCUR

All approaches attempt to address the issue of timing of emissions, but do so in very different ways as described above. The emissions calculated as changes in stocks are not the same as 'actual' emissions resulting from specified activities. For example, the change in forest stocks assumes harvesting is an emission to the atmosphere and the inflows to product stocks are assumed to be atmospheric removals. Despite producing different values at the sub-global level, emissions can be expressed as a change in stocks, and vice-versa. Table 2 shows an example using a regular linear decay over 10 years, similar to that applied to biomass in the case of deforestation[10]. Other decay profiles can be selected as discussed below.

[9] FCCC/CP/2001/13/Add.1, Page 56

[10] e.g. land converted to cropland or grassland, LULUCF GPG 2003

Table 2. Carbon stocks and emissions from wood products

Harvested		Stocks (end of year)						Emissions (during the year)				
Year	**tC**	**1990**	**91**	**92**	**93**	**94**		**1990**	**91**	**92**	**93**	**94**
1990	50	50	45	40	35	30			5	5	5	5
1991	50		50	45	40	35				5	5	5
1992	100			100	90	80					10	10
1993	100				100	90						10
etc	100					100						
Total stock		**50**	**95**	**185**	**265**	**335**	**Emit/year**	**0**	**5**	**10**	**20**	**30**
Stock change		50	45	90	80	70						

The decay profile could be selected by Parties to reflect 'reality', to be consistent with other parts of national inventories, or based on the complexity and duration of reporting emissions following harvest. Three examples are shown in Figure 2. Assuming instant decay after a fixed period is perhaps the simplest to apply, for example delay reporting the emission of 50tC in sawn timber by 20 years. The linear decay method is consistent with the treatment of biomass following deforestation, and requires reporting a portion of the emissions over a fixed period. The exponential decay might be considered to reflect a realistic emission profile, but it also requires more historic data if all the inherited emissions are to be captured to accurately estimate carbon stocks.

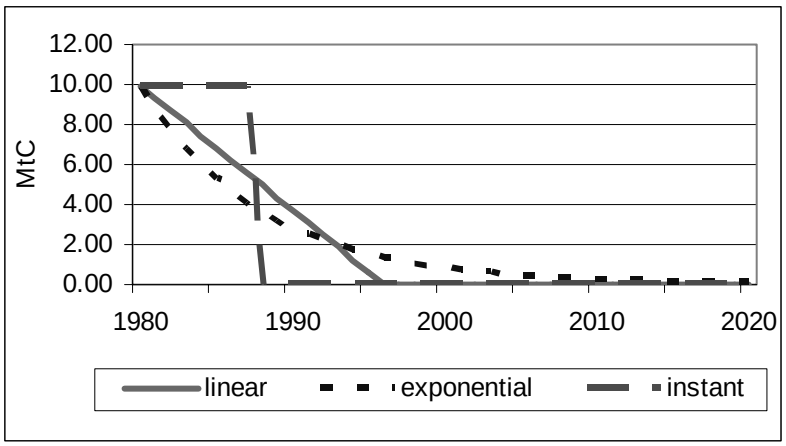


Figure 2. Carbon stocks remaining in wood products using different decay profiles.

If emissions can be reported over time according to the nature of the products, this may encourage growers to manage forests on longer rotations to produce large logs capable of being converted to sawn timber. Such an approach would also tend to favour using high value timber species and to encourage high conversion efficiency from logs to products. If processing wastes are assumed to oxidize immediately, this would encourage the use of these as bioenergy instead of fossil fuels. However, if putting these wastes in disposal sites is considered an acceptable way of delaying emissions further (even indefinitely), Parties may choose this option. Similarly, if disposal sites are included as eligible 'sinks' under a Stock Change approach, Parties may choose this option to gain credit.

WHERE EMISSIONS OR STOCK CHANGES OCCUR

The key issue here is allocation of responsibility, but responsibility for reporting emissions from harvesting is a different issue from allocating responsibility for product stock changes. The former is likely to be reporting an emission, whereas the latter is more likely to be a credit for stock increases.

Given the proposal in Box 5 of the *IPCC Guidelines* it appears Parties are recommended not to report at all if the stocks are decreasing.

The issue of allocation only arises because there is international trade in wood products. The examples given here will be based on the assumption that the producer exports products to a consumer country.

The Stock Change approach allocates the responsibility for emissions of all harvested carbon to the producer, and credit for stock changes to the consumer. This means the producer reports the sink in forests as they grow, and reports the emission at harvest. As the consumer, an Annex I Party can report removals of carbon from the atmosphere in their product stocks, which may well include wood/fibre sourced from non-Annex I countries, deforestation, and pre-1990 forests. The grower of sustainably managed forests might not have any change in forest stocks, but the consumers of bioenergy and wood products could benefit via stock changes and fossil fuel substitution (direct and indirect). The Production approach addresses the perceived inequity in this approach, by allocating the responsibility/credit for stock changes to the producer of the wood.

The Dakar workshop report (p11) noted that data on stocks of end-use products (e.g. wood in houses) is a potential constraint at higher Tiers, since few countries directly measure them. This constraint was seen to be amplified in the Production approach since stock data would be required for all countries to which products are exported.

Quantifying stocks in overseas locations can be difficult and the producer has little influence over policies and measures to manage product stocks. The grower, however, does have considerable influence over the potential use of his wood, and as such over the likely time before the carbon is emitted from them. Small logs from short rotation forests are less likely to end up in long-lived products than large logs from long rotations of durable timber species. In the absence of other information, an approximate split of end uses can often be made at a national or sub-national scale by comparing the total roundwood volume harvested (by log types if available) with the total manufacture of products. The Simple Decay approach applies this theory to determine the timing of emissions from harvesting, regardless of its source or destination.

An advantage of the Simple Decay approach over the Atmospheric Flow approach is that it does not alter the current allocation of responsibility for emissions. The same quantity of carbon is still reported as emissions by the grower, but it is reported over a time frame that more closely represents emissions to the atmosphere. This means that there is no penalty for use of imported biofuels and unlikely to be any impact on trade in wood products. This may be an important factor until Parties can consider wood and non-wood products on a consistent basis e.g. with respect to manufacturing energy intensity or embodied energy.

SOCIO-ECONOMIC IMPACTS

Many of the impacts are largely determined by national policies, rather than the international framework within which they fit. For example if a Party retains responsibility for all sinks and sources in LULUCF, forest owners may be unaffected by any decisions. National governments that choose to retain ownership of credits, can use the revenue from their sale to encourage sustainable forestry development with broader objectives than carbon sequestration, and to support development of appropriate renewable energy e.g. bioenergy in the forest processing industry to reduce, or at least avoid increasing fossil fuel emissions.

Similarly, if new approaches are adopted for emissions from harvesting and wood products, governments could still apply a stock change approach to forests for allocating ‘credits’ domestically or for trading. If a stock change approach is adopted for products, it is likely to be more difficult to apportion credit to

individual activities than if an emission-based approach is chosen, since the latter are more applicable at a range of scales and can be associated with particular activities.

The Simple Decay approach could also be applied to JI/CDM forestry projects to address the issue of permanence. For example, a short rotation forest established for pulp logs might have a portion of the emissions delayed by only 2 years to reflect the short-lived product focus of the rotation. In other words the project duration would be extended by 2 years before those emissions would have to be accounted for. A rotation focused on producing durable solid wood products might have the emissions of the carbon in its products delayed for 100 or more years. Figure 3 provides an example which could be seen as a simplified example of a project impact.

CONSISTENCY

Decisions already adopted by Parties may have a considerable bearing on future choices, and as such selecting an approach that is consistent with both the UNFCCC and Kyoto Protocol may be important. The Kyoto Protocol does not explicitly require Annex-I Parties to include harvested wood products, but it does require parties to estimate "greenhouse gas emissions by sources and removals by sinks resulting from direct human-induced land use change and forestry activities, limited to afforestation, reforestation and deforestation since 1990…" This would suggest that an emission-based approach linked to activities may be required. This type of approach is already adopted by some parties for emissions from decay of unharvested biomass in the forest. The remaining stocks can be identified as shown in Figure 3.

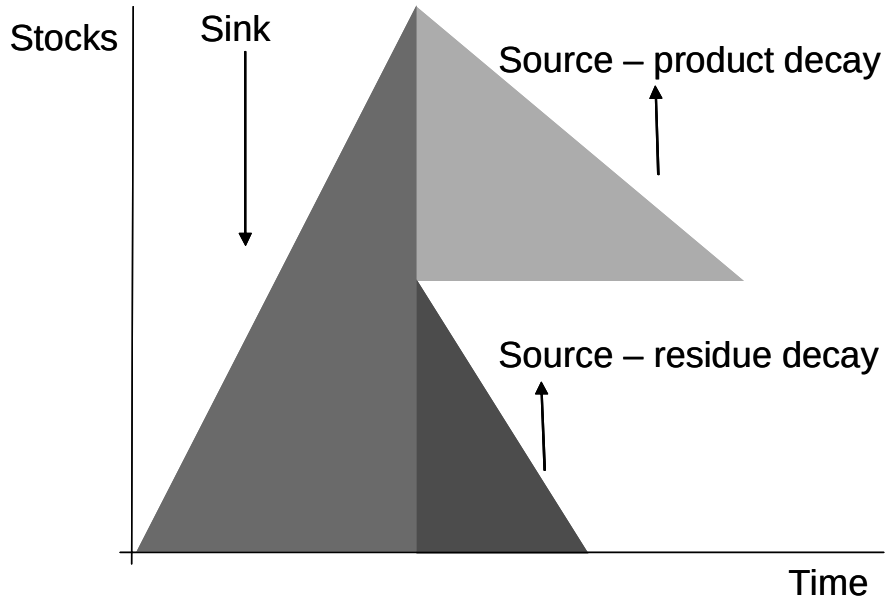


Figure 3. Carbon stocks resulting from afforestation activity (stand level).

In practical terms, the application of a decay period to products merely extends the length of the rotation. This is more easily seen by looking at the impact on a forest comprised of equal areas of individual stands established in successive years. Figure 4 demonstrates an example of the impact of afforestation, forest management and deforestation on atmospheric carbon levels, as indicated by the stocks in forests and their products.

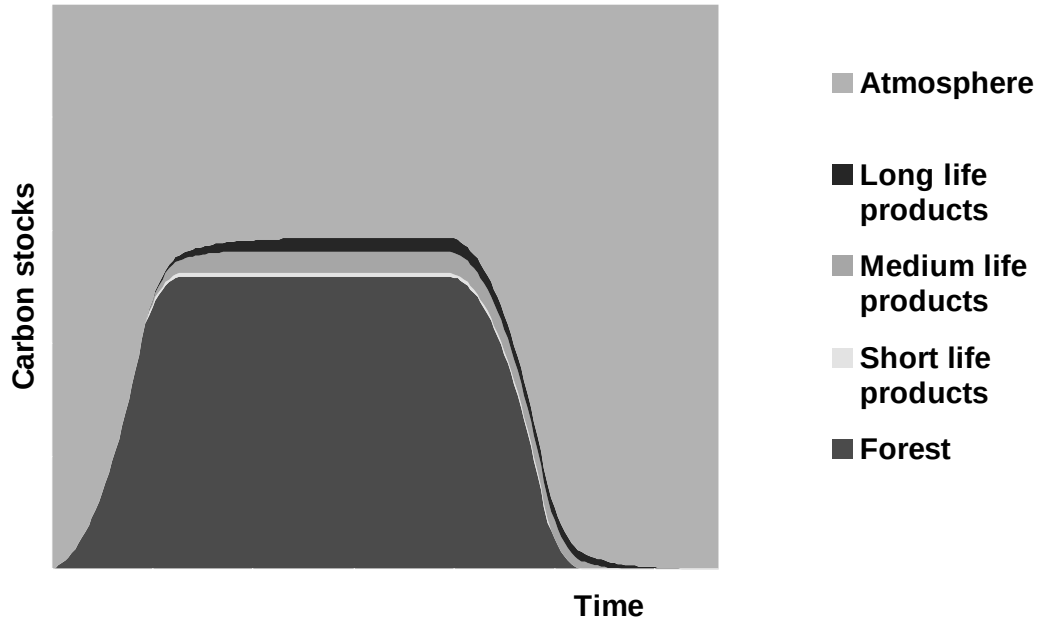
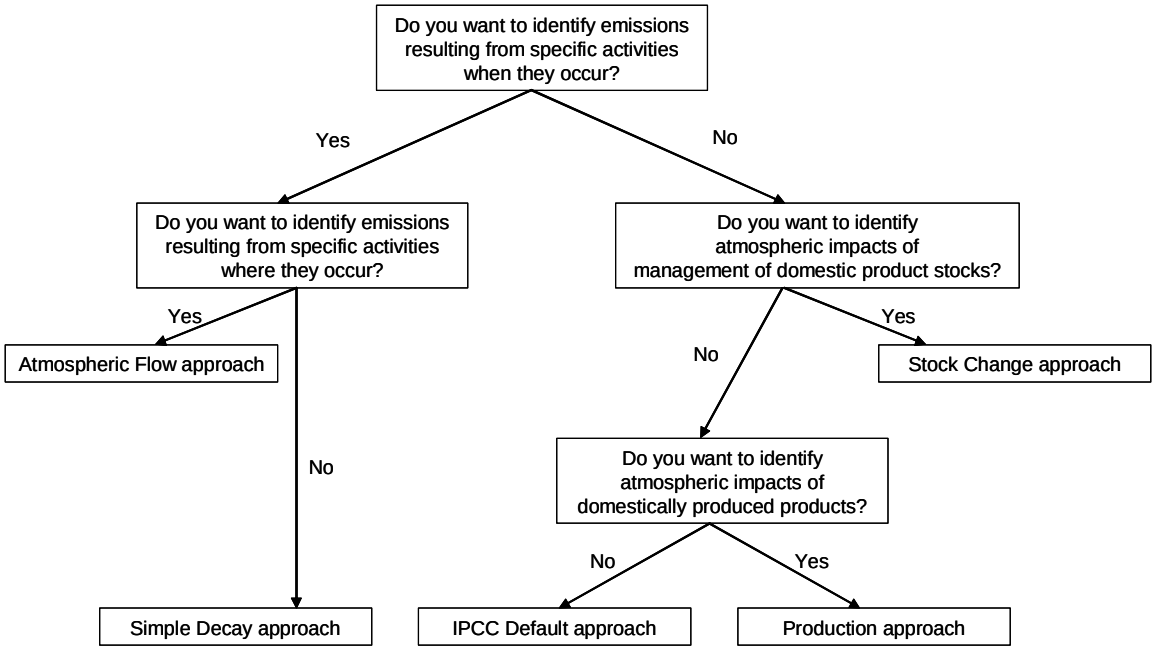


Figure 4. Carbon stocks resulting from afforestation activity (forest level).

Decision support

The following decision tree may be useful in identifying appropriate options.



Possible Solutions

It is possible to envisage a two-part solution, since there are essentially two separate issues:

- emissions from harvesting;
- management of HWP stocks.

TIMING OF EMISSIONS FROM HARVESTING

There may be a need to provide better guidance on the emissions from harvesting following specified activities under Articles 3.3 and 3.4. This is a necessary step before dealing with the total HWP pool.

If Parties are required to report all sources and sinks resulting from activities since 1990, all emissions resulting from harvesting and deforestation (including clearance of woody biomass from rangelands and croplands) need to be accounted for. In the absence of other information, the default assumption of emission at the time of harvest can be applied, but this is recognized as inaccurate and should hence be rectified as recommended in the *IPCC Guidelines.*

Since this applies only to activities since 1990, Parties would not require historical data to calculate inherited emissions. Without these, estimating emissions and removals from HWP stock changes would result in reporting an apparent sink for many years (related to lifetime used). Therefore it would be more accurate to apply emission factors to the annual harvest volume.

Decay times applied very conservatively e.g. a 5 year delay for 50% of the harvested carbon is likely to be a more accurate representation of emissions (reversing the removal for which 'credit' is available) than emissions at harvest. Data on lifetimes can be established based on a range of factors including physical characteristics, local environment, or socio-economic factors.

In practice this could be implemented in a number of ways, such as:

Tier 1: assume emissions at harvest (current IPCC default)
Tier 2: utilize national statistics on harvesting and conversion to estimate year 1 losses. Provide default decay periods for different categories (one or more) of products. Assume all emissions occur at the same rate regardless of final destination.
Tier 3: Enhance Tier 2 wherever possible e.g. improved categories of products, national statistics on end-use products and their lifetimes, verification of uses of exported products etc.

This proposal is consistent with the principles in the Marrakesh Accords since it is based on sound science, can be applied consistently over time, excludes the presence of stocks resulting from activities before the reference year, is consistent with guidance available at the time commitments were negotiated by accounting for the reversal of a removal (sink) at an appropriate time.

MANAGEMENT OF DOMESTIC HWP STOCKS

This could potentially be a new activity, even though there is no removal of carbon from the atmosphere and wood products is not explicitly listed in the pools to be accounted for in the Marrakesh Accords (unless it is included in dead wood). The justification could include the fossil fuels substitution impacts, even though any reduced emissions from fuels or non-wood materials will already be captured as such in other sectors of national inventories.

While the forest type (species, management etc) determines the potential life of its products, activities can be undertaken to extend this. Recycling and reuse are such examples, but it may be difficult to identify the impact on product stocks. Increasing a product life does not necessarily mean the stock will increase e.g. if a wooden table is in use for 5 years or 10 years there is no change in the carbon stock in use. There may be reduced demand for HWP if tables last longer, and hence impacts on timber supply.

The aim is to try to encourage consumers to own a second wooden table, rather than a non-wood equivalent. This may best be achieved by producing HWP that are capable of performing better and/or in new roles, and having regulations in place to allow their use. Some Parties may choose to import high

quality timber products to encourage longer retention by consumers. Others may import commodity logs to be able to benefit from both the wood products and bioenergy contained in each log.

If this is introduced as an activity, it could include all HWP, not restricted by source of wood or type or timing of activities. Any of the approaches could be used to estimate flows into and out of the HWP pool, including international trade. Historic data would have to be obtained as far back as the impact of the decay profile applied.

If harvesting emissions are reported by the grower, it may also be necessary to use an accounting approach for all stocks that are produced by the grower i.e. the Production approach. In order to avoid double counting stocks resulting from activities since 1990, these would have to be subtracted from the total stock change resulting from a grower's forests.

Since this activity is not required under current guidance, the approach and methods for applying it could form part of the negotiations for future periods. The impacts of the approach for managing wood products will be heavily influenced by the treatement of non-wood products.

Background References

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Annex I. Forest harvesting and wood products – an example

100tC in roundwood is harvested annually from a sustained yield forest and processed into a range of products. 50tC is emitted during processing and from short-life products within the first year, so that 50tC remains in products at the beginning of the second year. Thereafter the carbon in the products is emitted at a constant rate over the next 5 years (10tC/yr for years 2-6) until none remains in products.

This example includes no changes in stocks in, nor emissions from, products that might be discarded and replaced by these new products.

In the first year therefore there are emissions of 50tC. In the second year there will be a further conversion emission of 50tC from the second harvest, plus 10tC from the previous year's products. Further emissions accrue each year until a constant rate is achieved. Figure 1 shows how emissions vary over the first 10 years.

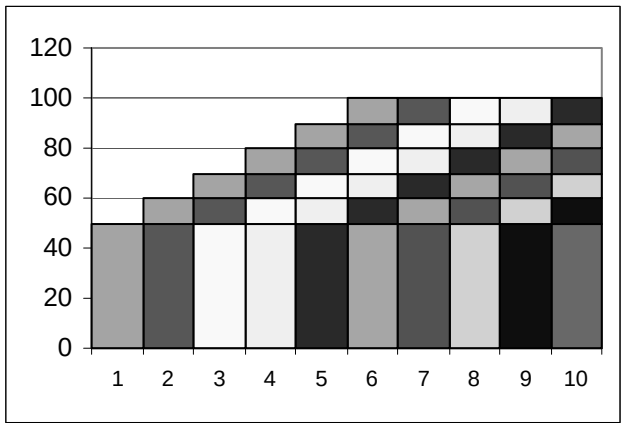

Figure 1. Emissions (tC) from the hypothetical example

Stocks in HWP increase by 50tC in the first year (Figure 2). In the second year 20% of the C in these products is emitted (10tC), but a further 50tC is added to the pool, giving a total of 90tC. The stocks have increased by 40tC. Each year the stock change is the balance between losses ('inherited emissions') from previous years' products, and the new products added. As with emissions, stocks increase for a period (equal to the lifetime) until additions to the stock equal the losses.

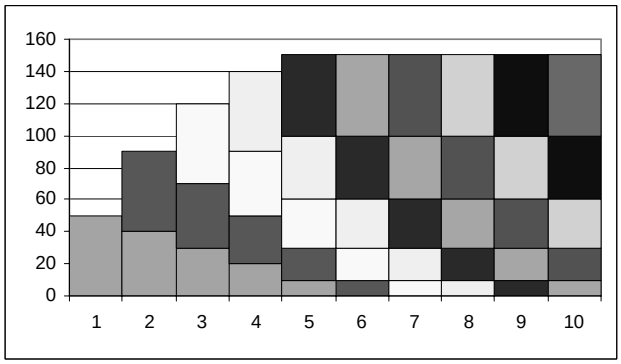

Figure 2. HWP stocks (tC) from the hypothetical example

Figure 1 shows a more accurate profile of emissions from wood removed during forest harvesting than the IPCC default assumption of instant emissions in year 1. This type of emission profile may be required

to report emissions resulting from ARD or other activities. The total carbon content of the harvested logs is reported as emissions.

Figure 2 shows how the carbon stock in products derived from this forest is increasing. There are no emissions reported, only stock changes. In this example a ‘sink’ of 150tC would be reported during the first 5 years. If the example included a non-decay component in landfills, there would be a constant sink i.e. even after the products in use reached an equilibrium position, the landfill stocks would continue to increase.

PAPER NO: 6: SWITZERLAND

The Estimation, Reporting and Accounting of Harvested Wood Products

In response to the call for comments by SBSTA 19 on issues relating to harvested wood products**,** Switzerland would like to present the following views.

Switzerland welcomes the initiative concerning CO_2 inventory approaches which aim to take harvested wood products into account. The three approaches under discussion promote a better understanding of the situation in reality. The stock-change, production and atmospheric-flow approaches constitute a relevant improvement as compared with the IPCC default approach. Carbon accumulation in long-lived wood products is accounted for in all three approaches. In the case of wood products with an annual life cycle, there is no difference to the approach currently in use.

Requirements

In Switzerland's view, a carbon accounting method must meet the following requirements:

Realism
The accounting approach represents the carbon cycle in a way that corresponds as closely as possible to the situation in reality. It records the stocks and flows between the atmosphere and biosphere/anthrosphere temporally and locally on the basis of reality. The approach and method are designed in such a way that they can support a country in the control and monitoring of policy and the measures implemented.

Comprehensibility
The approach is easy to understand and intelligible. The results can be verified.

Feasibility
The database is already available. Where special surveys and calculations are required, they can be carried out at a reasonable cost and at the required level of detail. The methods used in the creation of the database are familiar and technologically and scientifically tried-and-tested.

Sustainable forest management in accordance with Article 2 of the Kyoto Protocol:
The approach shall support sustainable forest management in accordance with the definition contained in the Marrakech Accord. It guarantees stable, near-natural forests, the conservation and guaranteed supply of the resource wood and its capacity for regeneration.

Sustainability in accordance with Article 3 of the Rio Climate Convention:
The approach supports a sustainable resource policy and the conservation and efficient use of global resources. The substitution of fossil and other raw materials and fuels whose supply is limited with the renewable resource wood is promoted.

General comments on CO_2 accounting

From the perspective of the greenhouse gas issue, the advantage of using wood lies not only in the sink effect in the forest and the formation of wood stocks in the civilizational cycle. Eco-balance considerations reveal that in terms of the generation of greenhouse gases in the course of their lifespans

wood products are generally superior to the products they substitute. Wherever wood is used as an energy source, be it as forest, scrap or used wood, it usually replaces fossil fuels. This results in the reduced consumption of fossil raw materials and fuels and a corresponding improvement in the CO_2 emissions balance. Switzerland rates these effects of HWP as an argument in support of the definition of an accounting system that takes the sustainable use of the resource into account.

The IPCC Default Approach

The approach is simple, easy to understand and intelligible. The necessary database is already available. However, its disadvantages clearly emerge in the context of the following keywords:

Realism:	The approach does not take changes in the wood stocks in the civilizational cycle into account. It is assumed that CO_2 is emitted when wood is harvested and, therefore, that wood has a life span of less than one year. Hence there is no correspondence between the calculated and effective emission levels.
Sustainable forest management:	The approach places a one-sided emphasis on the development of standing volumes in the forest. This practice does not promote sustainable forest management. It is not possible to increase the standing volume in a forest at random. The collapse of over-mature woodlands re-releases the unused stored carbon as CO_2.
Sustainability policy:	The approach also presents an unsuitable model from the perspective of general sustainability policy. The development of standing volumes in the forest is incompatible with wood harvesting. Thus, the forest is not optimally utilized as a resource. There is little incentive to replace fossil materials with the renewable raw material wood.

The Stock Change Approach

The “Stock Change Approach” is evaluated on the basis of the above criteria as follows:

Realism:	The actual carbon cycle is well represented thanks to the fact that the wood stocks in the forest and in the civilizational cycle are taken into account. For the producer country, the export of wood corresponds to a source which represents a reduction in the standing volume, but it does not correspond to an emission. Analogously, this objection is also applicable to imports, whereby there is an increase in the stock but no actual sink is formed.
Comprehensibility:	With the acceptance of national borders as system boundaries, the carbon cycle is easy to understand.
Feasibility:	Although this approach requires relatively comprehensive accounting calculations, it should be noted that the data can be obtained at a reasonable cost and at the required level of detail.
Sustainable forest management:	The development and conservation of well stocked woodlands is rewarded. However, up to the point at which the wood stocks in the forest and in the civilizational cycle are complete, in terms of the accounting techniques, it makes more sense to import round timber and wood products and thus to neglect the sustainable use of the forests in the individual countries. Thus,

there is a risk of the promotion of over-felling in certain countries of origin.

Sustainability policy: The use of the locally grown resource wood is only worthwhile if the forest stock is complete. Thus, there is a risk that the sustainable use of the resource forest will be deferred. The incentive to produce long-lived wood products and to recycle all wood products is seen as positive.

The Production Approach

The Production Approach is evaluated on the basis of the above criteria as follows:

Realism: This approach fails to convince, in particular with regard to the local correspondence between the accounting and reality with respect to the wood stocks. In accounting terms, the producer country is liable for the wood stocks arising from its production activities, irrespective of their actual physical location. Conversely, the consumer country is not responsible for the imported wood products. Thus, the emissions from decomposed/incinerated imported wood are assigned to country of origin.

Comprehensibility: The structure of this approach is relatively difficult to understand.

Feasibility: The methods and instruments for the creation of the database for the forest are largely familiar. Significant uncertainty exists with respect to the allocation of the decomposition volumes (biological decomposition, incineration), both in the context of the producer country's exports and consumer country's imports. The wood stocks would have to be differentiated in terms of imports and the country's own products. This has not been carried out hitherto and would give rise to exceptional costs.

Sustainable forest management: The development and conservation of well-stocked woodlands is rewarded. However, up to the point at which the wood stocks in the forest and in the civilizational cycle are complete, in terms of the accounting techniques, it makes more sense to import round timber and wood products. Thus, there is an incentive to neglect the sustainable use of the producer country's own forests.

Sustainability policy: The use of the locally grown resource wood is only worthwhile if the forest stock is complete. Thus, there is a risk that the sustainable use of the country's own resource forest will be deferred in favour of the importation of wood. On the other hand, a reduction in the stocks in the civilizational cycle abroad can create an incentive for the export of wood.

The Atmospheric Flow Approach

The Atmospheric Flow Approach is evaluated on the basis of the above criteria as follows:

Realism: The selection of the system boundary between the atmosphere and biosphere/anthrosphere means that the effective flows in the carbon cycle can be correctly represented in local and temporal terms. The emissions are assigned to the country that actually uses the raw material.

Comprehensibility:	The approach is easy to understand and communicate.
Feasibility:	In general little data is required. This data is available on the forest side. The recording of standing volumes is not essential.
Sustainable forest management:	The development and conservation of high-increment forests is rewarded. The utilization of the forest in terms of the optimization of the carbon cycle means that the forest's stability and capacity for regeneration is strengthened.
Sustainability policy:	The use of the locally grown resource wood is promoted and neither the development of well-stocked and under-harvested forests or the import of roundwood and wood products is advantageous. There are significant advantages associated with making comprehensive use of the potential offered by the resource wood. Incentives exist for the production of wood products with the longest possible lifespans and to recycle paper and other wood products. This approach provides the strongest incentive for a sustainable resource policy and the optimized use of HWP.

Conclusion

Based on the above information, Switzerland favours the Atmospheric Flow Approach for the accounting of harvested wood products. This accounting approach realistically reflects the CO_2 flows between the atmosphere and biosphere/anthroposphere in their local and temporal dimensions. It is easy to understand and communicate. This approach is simply convincing. The necessary database is largely available at the necessary level of detail and any gaps that may exist in the data would be easy to fill. It is the only approach that rewards the sustainable use of the forest involving a high level of increment and the simultaneous resource-aware use of the wood.

Irrespective of the selected approach, in terms of the accounting of HWP, the wood flows between Annex I and Non-Annex I countries and between countries that have ratified the Kyoto Protocol and those that have not need to be clearly regulated .

Availability of data for carbon accounting in Switzerland

The following databases are available in Switzerland for the purpose of calculating the effects of HWP using the different approaches:

Wood increment in the forest	A National Forest Inventory is carried out every ten years. The standing volume is recorded and gross and net increment can be calculated at an adequate level of accuracy. Changes in the country's forest area are also recorded.
Non-forest trees	A method for recording changes in the biomass in trees outside the forest is being studied.
Harvesting	Switzerland's forest statistics summarize the forestry service's reports on the annual volume of wood harvested. Losses are calculated in the context of the National Forest Inventory. Thus, the declared harvested volume can be verified in this way and the forest residue or slash, i.e. the natural losses, estimated at the necessary level of detail (explanation in the National Forest Inventory Report).
Wood production	According to the forest statistics wood harvesting in the Swiss forest also corresponds to wood production. Certain inaccuracies exist – at most in the production of energy wood.
Wood stocks in the civilizational cycle	In terms of wood in the civilizational cycle, what is fundamentally of interest are changes in the stock and not the absolute level. The inputs (use of new wood products) and outputs (losses for wood products) can be measured at a reasonable cost. Insofar as information about the stock size is deemed necessary, it will be necessary to internationally co-ordinate and harmonize the relevant calculation methods. Dynamic calculation models which provide suitably accurate results have been developed and tested in Switzerland.
Import/export	The import and export values can be taken from the foreign trade statistics. More or less tried-and-tested factors exist for the conversion of product weight to wood volume or wood weight. The factors are internationally agreed for the standard semi-finished products. Factors exist on the level of three-quarters-finished products and finished products (furniture, packaging, construction elements). These should be constantly checked and internationally adjusted on the basis of the product composition.
Energetic use of forest, energy and scrap wood	The energy wood statistics provide information about the use of wood as an energy source. The volume of wood used in systems is calculated on the basis of the installed heat performance. This calculation can be checked by means of a periodic survey of wood consumption in Switzerland. The use of slash wood is estimated.
Incidence and use of used wood	The total volume of the wood resulting annually from the product cycle is not comprehensively recorded. Used wood that is used for energy purposes and exported is statistically recorded. Other uses should be studied, however they should only represent a small proportion of this wood.
The use of waste wood as energy	The volumes of used wood burned in waste incineration plants and special waste-wood furnaces are statistically recorded. The volumes of paper eliminated from the cycle can be calculated on the basis of the paper industry's production and recycling figures and from the foreign trade statistics. How much of this is incinerated for energy purposes, how much is deposited in landfills is not recorded, but the volumes in question are not considerable. The proportion of paper used in long-lived products (e.g. books, archive documents) is not estimated.
Export von used wood	Based on the Basle Agreement, the export of used wood must be notified. The volume of used wood exported can therefore be taken from the foreign trade

	statistics.
Deposition of used wood in landfills	There is a basic ban on the deposition of organic biodegradable materials in landfills in Switzerland. The volume of wood that is still deposited in landfills should therefore be relatively small. However, it cannot be excluded that a certain volume is illegally deposited in landfill. This gap in the accounting figures would have to be filled in the event of a change in the accounting approach.

Comparison of the four examined approaches for Switzerland

Table: Provisional accounting values for the current situation in Switzerland (+ means removal, - emission)

Aggregates	*Values (in million units)*			***IPCC Default***	***Stock Change***	***Production***	***Atmospheric Flow***
	m^3f 1)	t C 2)	t CO_2 3)	Mt CO_2 3)	Mt CO_2 3)	Mt CO_2 3)	Mt CO_2 3)
Increment	9.9	2.5	9.1	9.1	9.1	9.1	9.1
Slash, natural losses	2.5	0.6	2.3	- 2.3	- 2.3	- 2.3	- 2.3
Wood harvesting	4.8	1.2	4.4	- 4.4	- 4.4	- 4.4	
Wood production	4.8	1.2	4.4		4.4	4.4	
Imports	6.2	1.6	5.7		5.7		
Exports	5.3	1.3	4.9		- 4.9		
Incineration/decompos-ition							
. Forest/scrap wood	2.2	0.6	2.0		- 2.0	- 1.9	- 2.0
. Waste paper	1.3	0.3	1.2		- 1.2	- 0.7	- 1.2
. Waste wood	1.4	0.4	1.3		- 1.3	- 1.2	- 1.3
Total				**2.4**	**3.1**	**3.0**	**2.3**

Legend
1) m^3f stands for the cubic metres of solid wood mass, according to the volume of wood fixed in the wood product.
2) It is assumed by way of simplification that $1m^3$ solid wood mass contains 250 kg of carbon.
3) 1 t of fixed carbon corresponds to 3.67 t of unreleased CO_2.

PAPER NO. 7: UNITED STATES OF AMERICA

United States Submission on the Views Related to Carbon Accounting and Wood Products

Wood products are an important component of the carbon cycle and as such, they should be included in any greenhouse gas accounting system. A variety of approaches have been proposed to account for wood products, including the stock change, production, atmospheric flow and modified production approaches. Under the Framework Convention on Climate Change (FCCC), the U.S. has supported a comprehensive approach to carbon accounting, including wood products.

A comprehensive approach to carbon accounting should capture all relevant pools including the carbon in forests as well as disposition of harvested wood. The flow of carbon can be estimated by subtracting the carbon emissions (i.e., wood burned for energy, wood burned without generation of usable energy and decomposing wood) from the gross carbon uptake attributed to the forest ecosystem. Alternatively, the flow of carbon can be estimated as the net change in carbon stock in forests, harvested wood products and landfills.

Harvested wood products are goods manufactured or processed from wood, including lumber and panels for end uses such as housing and furniture, and paper and paperboard for uses such as packaging, printing and writing, and sanitary applications. Landfills store carbon as discarded products that eventually decompose, releasing carbon as emissions. The actual timing and amount of carbon released to the atmosphere depends on how products are processed, their end-use and their ultimate disposal. For example, carbon emissions from residues and wastes are generally released into the atmosphere in a relatively short period of time. However, carbon may be stored in products (e.g., paper products, buildings) for relatively long periods of time. Generally, the amount of time the carbon remains in paper products in use range from less than 1 to up to 6 years while the amount of time carbon remains in homes can range from 70 years to over 100 years. In addition, when products are taken out of use, some carbon is sequestered in landfills. In modern landfills much of the wood and paper carbon can be sequestered almost indefinitely. To reflect the fact that carbon from harvested wood products is released gradually over time, the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* allow a country, if data exist, to account for increases in the pool of forest products.

The United States would like to thank the Secretariat and the experts for their preparation of the technical paper on accounting for wood products. We feel this paper represents a significant contribution to an already rich literature available to SBSTA on this subject that began with an IPCC expert meeting held in Dakar, Senegal in 1998 and the informal workshop held in Rotorua, New Zealand in 2001.

The technical paper prepared by the Secretariat reinforces our view that wood products represent a growing and important carbon pool and we are committed to work with other Parties to properly account for this important component of the carbon cycle.

The technical paper prepared by the Secretariat notes in its conclusions that “Available data and information indicate that the stock of wood products is currently increasing at the global level”. Therefore, we believe the IPCC recommended default assumption that all carbon in biomass harvested is oxidized in the year of harvest consistently overestimates annual emissions for countries with growing pools of wood products. With regard to the importance of wood products, the paper prepared by the Secretariat shows that for many Parties, wood products are an important carbon pool. In some cases, carbon stock changes associated with wood products are estimated to be greater than carbon stock changes associated with other land use and land use change.

While a variety of approaches have been proposed to account and attribute the carbon in wood products, these approaches for accounting for the carbon in wood products should not be confused with methodologies for measuring and estimating the carbon associated with wood products. The methods for estimating changes in carbon stocks from wood products continue to be improved. New guidance is offered in Appendix 3.a.1 of the 2003 IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry. We believe it is important that Parties begin to account for the carbon associated with wood products in their national inventories being reported under the FCCC. We note that this option is already reflected in the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, which were adopted for use by the Parties in preparing greenhouse gas inventory submissions under the FCCC, and that some Parties are already reporting this information.

Reporting of carbon storage in wood products should be encouraged and expanded as long as Parties report the carbon associated with wood products transparently. Therefore, we encourage Parties to report carbon emissions and storage in wood product imports and exports separately. Parties could choose to include imports and exports in the summaries of their national inventories using one of the accounting approaches identified by in the Secretariats' Technical Paper. Parties including wood products imports or exports should document their approach and use the accounting system consistently for all reporting years. This type of transparent reporting of carbon associated with wood product imports and exports would provide flexibility if, in the future, Parties decide that a single accounting approach is necessary.

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