Explanation of Activity-Based-Accounting v. Managed Land Proxy Proposal

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Introduction

This document explains the proposal for activity-based-accounting (ABA) and why the "managed land proxy" (MLP) contradicts science, cannot logically be used simultaneously with emissions estimates using global warming potentials, and inevitably claims that actions that increase emissions reduce emissions. A separate document includes the actual ABA proposal. It is based on methods used in a broad literature, including 35 ABA papers cited in Appendix A. It should be approved in concept but subject to final adjustments based on technical guidance and model testing as discussed below.

Pilot testing that was conducted using the MLP approach in 2024 found that use of the MLP for Scope 3 and any product-level accounting generates remarkable outcomes: In general, harvesting and using wood for any purpose becomes carbon negative, and the more wood used the better. This is because--despite carbon losses from both wood harvests and agricultural conversion--most forest areas are growing due to climate change itself. Forests in the temperate zone are also recovering from vast historical harvests and abandonment of agricultural land (much due to outsourcing of food production to the Tropics). Wood harvests in general emit carbon. However, under the MLP, the large carbon gains in broader forest areas that result from these other forces are assigned to the roundwood harvested and ultimately to wood products, making them not merely carbon neutral but carbon negative. Every company testing the MLP for Scope 3 reported itself as carbon negative, both forestry companies and wood-product consuming companies. The MLP accordingly sends perverse incentives. Recycled paper is accounted as worse than virgin paper precisely because virgin paper uses more wood. Furniture that wastes more wood in its production is accounted as better than more efficiently produced furniture.

In addition, any company can lease already growing forests and effectively claim removals to cancel out all other land-sector emissions without engaging in any management action to increase forest growth. Cancelled emissions can include not just the emissions from wood harvests, but also those due to agricultural conversion and even agricultural methane and nitrous oxide. This easy potential to gain false removals would curtail climate progress and likely undermine any offsets with integrity, which require affirmative actions to increase carbon.

Although supporters point to use of the MLP for national reporting, to our knowledge, the MLP has not previously been applied in scientific literature to products or for Scope 3 accounting or even to Scope 1 company accounting. The implications of the MLP are fundamentally different and much more distorting when used by a company and when applied to a product rather than to a country. As one example, while the MLP makes wood use carbon negative for companies, wood harvest and use still increases emissions with the MLP at a country level. Given the inability to trace most wood products, the MLP also cannot practically be used for Scope 3 except by declaring that most global wood is carbon negative because forests are growing globally due to climate change effects.

The MLP also contradicts how the IPCC has itself estimated emissions from forestry in its scientific assessments, which use an ABA approach, as well the recommendations of hundreds of world-class scientists and major scientific bodies. These include a letter to the GHGP Secretariat signed by more than 200 scientists (Appendix C), and a letter representing the 27 European academies of science. They all call for activity-based accounting for the Protocol. Activity-based accounting is also how emissions in other sectors are counted, from energy use to agricultural production emissions.

We note that a final MLP proposal would continue to use the MLP for GHGP inventories but seek to ameliorate the consequences by recommending future development of a second, separate form of consequential accounting for actual use by companies in establishing and meeting climate targets. However, what the GHGP does is establish rules for Scope 1 and Scope 3 inventories and product-level accounting. Use of the MLP for these purposes would still lead to false results and create the same perverse incentives to harvest more wood and do so more inefficiently. It is the role of the GHGP to set the accounting rules, and for target-setting enterprises to set targets based on them. It is not for target-setting agencies, at least those that work with the GHGP, to develop their own separate accounting rules. Although little information is provided on the alternative accounting system, if it were developed with scientific integrity, the best-case result would be two accounting systems that do not complement but contradict each other. For example, the MLP would encourage use of virgin paper on the grounds that it is more carbon negative, while proper accounting would favor recycled paper. It is hard to see value in providing companies, and ultimately consumers, contradictory results.

Although the ABA proposal follows extensive literature, there are practical issues to work out in its implementation in different locations because of differential data available for different forest products, forest types and locations. The TWG debate has occurred at too general a level to develop technical guidance and to practically evaluate application of rules in all the different contexts to which they must apply. We therefore recommend that the ISB provisionally approve the TWG ABA proposal in general but also ask the scientific members of the TWG to take four months to work out technical guidance, to test and model results using differential information available in different locations, and to recommend any changes in the standard that seem appropriate. Based on that further analysis, the ISB should then revisit and vote on the final standard details.

Inventories are only inventories of anthropogenic emissions and removals

Throughout most of the debate, MLP supporters have claimed that the purpose of an inventory is just to describe the changes in carbon in forests or otherwise on land, and not to distinguish anthropogenic from non-anthropogenic emissions or removals. This distinction is supposed to excuse the fact that the MLP combines both effects. This was even articulated in the first MLP proposals of the TWG, and this concept remains an indispensable rationale for any proposed inventory using the MLP.

But this claim is based on a misunderstanding. As the 2006 IPCC guidance on national GHG reporting states almost in its first paragraph: "Anthropogenic emissions and removals means that the greenhouse gas emissions and removals included in national inventories are a result of human activities." (The 2019 IPCC refinement does not alter this language.) Similarly, the Paris Agreement refers to "removals" four times, including when discussing country inventories, and each time refers to "anthropogenic emissions and removals." In short, any inventory that is not based on evaluating the emissions or removals of "activities" is conceptually incorrect, which is why carbon accounting for energy, agricultural production and other emissions are calculated based on activities.

Section One: Activity Based Accounting

Basic principles of activity-based-accounting.

The harvest of wood releases carbon to the atmosphere that was stored in vegetation and soils. When wood is harvested, typically 30%-45% of wood (and therefore carbon) is felled and left to decompose as roots or slash, emitting carbon. Harvesting also causes collateral damage to unharvested trees, which in natural tropical forests typically exceeds the roundwood harvested multi-fold, and their decomposition also emits carbon (Ellis et al. 2019). Most of the roundwood harvested is used as fuelwood worldwide, including large shares even in developed countries, and the burning releases carbon. Of the harvested roundwood intended for wood products, such as paper, particle board or sawn timber, much and often more than half is burned in the production process. Paper products are then typically burned or thrown out within a few years. And many solid timber products will still be thrown out and burned or decomposed in landfills within 30 years. (See Peng et al. 2023, including supplement for full documentation).

Based on a long literature (Appendix A), the ABA approach starts by counting these carbon emissions using estimates of how long carbon remains in each "storage pool." The losses are direct releases of carbon to the air just like emissions from agricultural conversion and must be counted. There is nothing fundamentally different in the ABA proposal from accounting for land use change emissions in general.

The distinctive feature of forestry is that harvesting by itself, as well as direct forest management, can affect forest growth rates. Although not universal (and probably not true in the Northeast U.S. or much of Europe), young forests often grow faster than middle aged forests would continue to grow if unharvested. And middle-aged forests typically grow faster than older forests. Harvesting wood therefore can cause forests to regrow faster than unharvested forests would grow, paying back some of the "carbon debt" over time. Growth rates can also be altered by replacing native forests with plantations or by other forms of management. In effect, these additional growth rates cause anthropogenic "removals," that can be appropriately counted against the emissions from harvest and wood use.

If left alone, forests and other lands will grow on their own and sequester carbon but that is part of the baseline and not an anthropogenic removal (although the protection of

these growing carbon stocks is a critical component of climate action). Since according to the IPCC and the Paris Agreement, only "anthropogenic removals" count as removals against climate targets, the added growth must be separated from these natural removals. This logically requires estimating what growth rates would be without human activities. The ABA proposal allows for two such approaches. One is to use direct comparisons with growth rates in unmanaged forest sites, which is possible in some locations. The other is to use modeling approaches, which are in effect generalizations from direct comparisons. Modeling approaches are ubiquitous in the land sector. Dozens of papers have used these modeling approaches. See partial list in Appendix A.

The point of comparison for ABA is properly no human activity.

One of the critiques of the ABA is that estimating these calculations somehow introduces an impermissible "counterfactual" into lifecycle accounting, but this is wrong for several reasons.

- The ABA approach implements the mandate that only anthropogenic removals be recognized. The critique claims that removals must inherently be awarded for any change from a baseline year. But that contradicts the Paris Agreement, which recognizes that forests grow and cause removals on their own, which do not count as anthropogenic removals.
- The principal source of emissions from forestry results from taking carbon stored in living biomass in the baseline year and emitting it. Projected changes in forests over time if they are not harvested or managed only become relevant for calculating removals. (And contrary to MLP claims, such changes can and should build in the probability of disturbance.) If such projections were not allowed, then rules allowing only for anthropogenic removals would require assigning no removals at all. This would assign forestry higher net emissions.
- The counterfactuals that are prohibited in climate accounting are counterfactuals of alternative human behavior. For example, emissions from burning natural gas are not negative even if the alternative were burning coal. Such counterfactual approaches are impermissible because they factor in "avoided emissions" by others. The counterfactual against which anthropogenic removals are based is the no human activity scenario. That is the necessary comparison for all emissions and all removals and used through the GHGP.

Any benefits of the MLP are fully achieved by the ABA proposal for companies to separately report out of scopes changes in forest carbon in forests their own or control.

Because the MLP does not measure the effects of wood harvest and management, it at best provides potentially useful, background information about overall changes in carbon stocks in lands owned or controlled by a company. Although this information does not determine emissions or removals, the ABA proposal calls for companies to report this information.

Targets should not require that wood harvests stop but only encourage more carbon-efficient wood production and consumption.

Correct accounting does not mean that wood use is bad or that good forestry should cease. Instead, it is designed to encourage more carbon-efficient wood use and forestry. Correct accounting also allows users to accurately assess when wood products are better or worse than non-wood alternatives.

One factor driving the desire to treat wood use as carbon neutral or negative, the effect of the MLP, is the pledge many companies have made to become carbon neutral. If wood use is properly counted, that is challenging. We believe the solution here lies in properly establishing targets. The ABA proposal therefore recommends targets for companies based on improving the efficiency of wood production and use such that global climate targets can be met. This would probably mainly mean increasing efficiencies such that present emissions levels do not increase even as wood demand grows.

Whether companies meeting such targets should in some sense be able to declare themselves carbon neutral is a good topic for future discussion. Doing so would achieve corporate objectives while properly evaluating and therefore incentivizing needed wood use and forest management.

Equally fundamental, because the MLP attributes to wood use and forestry removals caused by others, it cannot feasibly be used to establish or achieve targets. If companies receive credit for removals they do not cause, science-based targets logically must require they achieve mitigation they cannot themselves achieve. (This is precisely why previously set SBTi forestry targets, which assumed the MLP, were deemed unachievable and abandoned.)

Section Two: The Managed Land proxy

The MLP incorrectly assesses emissions and removals because it assigns to wood use and forest management vast removals in broad areas they do not cause.

The MLP option for Scope 3 means that the effects of wood harvests and forestry overall are based not on their actual effects but instead on changes in land-based carbon stocks in some larger, although ambiguously defined, sourcing area. As a result, the effects of harvesting wood in one location can be and typically are more than canceled out by growing forests elsewhere, including forests owned by different people or by governments.

To illustrate mathematically, if some "sourcing area," however defined, is sequestering 10 million tons of carbon and 1 million tons of wood are harvested, each ton of wood is considered carbon negative by 10 tons (10 million/1 million). For Scope 1, the same math applies although the lands may be limited to those owned or controlled by a company. This explains why both wood-using and wood-producing companies testing an earlier draft Protocol all reported themselves as carbon negative.

Three major factors other than the effects of forestry and management will determine changes in carbon stock in the larger sourcing area.

- The passive carbon sink: Forest growth is massively spurred by climate change itself (as discussed more below).
- Recent harvests: Because younger forests overall tend to grow faster, forest areas that were more heavily harvested in the recent past will tend to grow faster and sequester more carbon.
- Behavior of others: For Scope 3, the changes will depend heavily on how much wood is harvested by others in the sourcing area. It will also depend on whether agricultural land has recently been abandoned, allowing reforestation, or has expanded, causing deforestation.

For these reasons, the overall effects of wood harvest, use and management are simply not reflected by changes in carbon stock in a broader area.

The MLP is like judging the effect of a specific drug by assessing changes in life expectancies overall. The effects may be judged not just as too large or too small, but harmful drugs may be improperly considered beneficial or beneficial drugs harmful.

Because climate change itself spurs forest growth, the MLP will make almost all wood use carbon negative.

In practice, the result of the MLP would be to make nearly all wood carbon negative. As recognized by the IPCC, and as shown in the Figure 1 (from Harris et al. (2021)), despite large carbon losses due to wood harvests and agricultural conversion, the great majority of the world's forest area is growing and accumulating carbon.

Globally, the predominant factor is the effect of climate change itself, recently phrased well as the "passive forest carbon sink" (Allen et al. 2024). It is well established, and fully recognized by the IPCC, that higher CO_2 concentration, changes in rainfall and warmer temperature particularly in the global North, lead to additional forest growth.[1] Estimates of this effect now typically exceed 10 gigatons of CO_2 per year (Allen et al. 2024; Ruehr et al. 2023), or nearly 1/3 of all CO_2 emissions. This vast carbon sink occurs despite wood harvests not because of them.

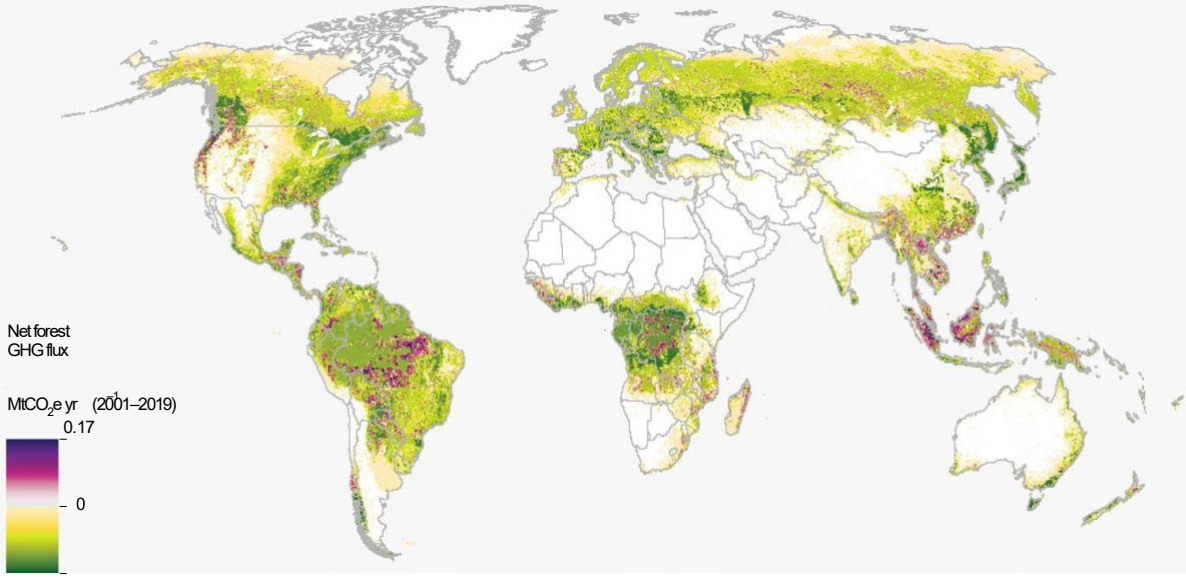
In temperate countries, this growth is aided by recovery from intense harvests in the 20th & 19th centuries and declines in agricultural areas. (These declines have occurred for many reasons including reduced areas needed to feed horses replaced by cars and

[1] The vast literature estimating the land carbon sink due to CO_2 fertilization and related factors includes: Ciais et al. 2008. "Carbon Accumulation in European Forests." *Nature Geoscience* 1 (7): 425–29; Ciais, et al. 2019. "Five Decades of Northern Land Carbon Uptake Revealed by the Interhemispheric CO2 Gradient." *Nature* 568 (7751): 221–25. https://doi.org/10.1038/s41586-019-1078-6; Davis et al. 2022. "The Effect of Carbon Fertilization on Naturally Regenerated and Planted US Forests." *Nature Communications* 13 (1): 5490; Ruehr et al. 2023. "Evidence and Attribution of the Enhanced Land Carbon Sink." *Nature Reviews Earth & Environment* 4 (8): 518–34.

tractors (Searchinger et al. 2023), and outsourcing of food production to the tropics (Pendrill et al. 2019).

To emphasize, this sink means nearly all wood harvests and uses will be viewed as carbon negative regardless of use, even if wood were burned in a bonfire at a company party. (Any benefit of storing wood in long-lived products would constitute extra removals, and any avoidance emissions from non-wood products would be an extra benefit for companies).

Figure 1: Net forest carbon changes



Harris et al. (2021) shows how forests in most parts of the world are growing, despite agricultural expansion and harvests. Scientists have attributed the net growth to climate change itself and it plays a critical role holding down climate change. If wood harvests were considered carbon neutral up to the point at which this sink were eliminated, the world could add 10 gigatons or more carbon dioxide emissions to the atmosphere each year and claim that these emissions did not exist. Any prohibition on counting such removals against fossil fuels does not prevent them from canceling out forest harvest emissions, deforestation from agricultural expansion, or methane and nitrous oxide from agriculture.

The MLP causes perverse incentives for wood product use and forest management.

Because removals are based on other factors not the effects of wood harvest or forest management, the MLP results in numerous perverse incentives:

- In general, the more wood harvested and burned or used in some way, the better for the climate, regardless of use.
- Recycled paper becomes worse for the climate than virgin paper because virgin paper is carbon negative.
- Highly efficient, composite wood desks become worse for the climate than destructively harvested, tropical hardwood desks both because they use less raw wood and because they use more fossil energy for glue and production. The

vast number of felled and unharvested trees during much tropical wood harvest would be irrelevant.

- Using fast-growing wood from plantations that are in equilibrium for paper products are also worse for the climate than using slow-growing, old trees so long as they stem from growing forests. (Even older forests are growing due to climate change.)
- The same management and wood harvest would generate widely different accounting scores just because they stem from different, arbitrarily defined sourcing areas. For example, we are told that one company in GHG Protocol testing divided a country into several sub-regions, which had different rates of net forest growth. Sourcing wood from one side of a sub-region border would have highly different emissions from the other despite identical management and forest type.
- Harvesting trees from "sourcing areas" that are presently little harvested by others because trees are immature and growing rapidly will generate more carbon-negative wood than harvesting from appropriately aged forest standards

The MLP cannot logically be used with global warming potentials because it inherently double counts.

The passive forest carbon sink due to climate change not only exists, but it is incorporated into estimates of the global warming potential of carbon dioxide, i.e., GWP_{100}. This is the metric used by the GHGP. It is incorporated because the removal of more than one quarter of CO_2 emissions by the passive forest carbon sink is already counted, which greatly attributes the warming effects attributed to CO_2. This means, in effect, that this sink is already assigned to everyone who emits carbon dioxide, including the companies. It cannot be assigned to forestry companies or users of wood products, except by double-counting, unless it is taken away from everyone else. Logically, this would require that the GHGP in general use a metric other than GWP_{100}. It is a scientific, even logical, contradiction to use GWP_{100} while using the MLP to account for forestry emissions.

Because of the passive forest carbon sink, use of the MLP is not just wrong in magnitude but in direction and by gigatons of CO_2.

Defenses of the MLP suggest that while the MLP may inaccurately assess anthropogenic effects, it is still useful, implying that it is a reasonable numeric proxy. As discussed below, there are specific limited circumstances in which the MLP can be a reasonable proxy for countries. These both explain its original acceptance for national reporting and why scientists have been calling for abandoning it as a true accounting measure. However, at the corporate or product level, it is wildly off.

First, the passive carbon sink greatly exceeds all emissions from the land sector. Any indicator that is wrong by more than 100% collectively cannot be a valid proxy.

Second, as discussed, at least for products and Scope 3, the MLP will generally be off in direction. It will claim that activities that increase emissions reduce them.

Third, this misalliance has irremediable consequences. The problem cannot be fixed by target-setting because the tighter the climate targets, the more climate-adverse activity is encouraged.

Awarding carbon removals for regrowth from harvests prior to a baseline year is inconsistent with climate agreements, inaccurate, and penalizes those countries that preserved their forests.

The MLP not only improperly awards removals for the effects of climate change itself but also for recovery from wood harvests or agricultural abandonment prior to a baseline year. This particularly rewards countries and companies that cut down their forests heavily in the past. The problem is that the recovery of these forests is not due to any new mitigation activity and in effect is already in the baseline. At the first COP post Kyoto, the Kyoto parties agreed specifically not only to exclude carbon sequestration from removals if due to climate change, but also to exclude growth due to stand age. Decision CMP.1 in (Marrakesh) explicitly affirms that carbon "accounting excludes removals from . . . the dynamic effects of landscape age structure resulting from activities and practices before the reference year [i.e., 1990]."

The rationale is this: Countries cannot properly account for carbon removals from the regrowth of any forests unless they have also accounted for emissions from the original harvest or clearing. The MLP approach would award removals for regrowth without counting the initial loss. The MLP would have the same effect for companies.

These effects not only make the MLP inaccurate but highly inequitable. It essentially sets a baseline equal to present forest carbon stocks. As a result, forests in countries or even in specific forest tracts heavily harvested in the past can continue to be heavily harvested while claiming wood is carbon negative. However, wood harvested from areas that were not heavily harvested cannot make such claims. In fact, the more recently forests were heavily harvested, the more rapidly they are likely growing and the more carbon-negative they become as a source of wood.

To illustrate the inequity, wood from countries like Gabon that has conserved its forests well historically will fare worse than wood from Europe, the U.S. or China precisely because of heavy forest clearing and harvests in the past.

Proposals to restrict the MLP by taking steps to ensure that forests are highly managed are irrelevant and make the accounting even more inequitable.

In the most recent proposal by MLP supporters, the sourcing area for assessing products for the inventory is supposed to exclude areas that are not highly managed for wood production. But this would not alter the distorted results because:

- Even the most highly managed lands benefit from the passive forest carbon sink.
- The net carbon emissions from wood would still depend heavily just on how much wood others are harvesting or have been harvesting from the same area.

- Most of the world's forests, including the vast majority in the temperate zone, are managed.

In fact, to the extent the proposal works to restrict the MLP to more highly managed forests, it makes the MLP even more inequitable. It would do so precisely by rewarding harvest of wood only from those countries that heavily cut their forests in the recent past.

The MLP would undermine offset integrity.

Although forest offsets have been criticized for not living up their standards, basic integrity standards include that carbon sequestration must be due to an activity, such as planting trees, that increase carbon growth, and any removals must deduct the effects of leakage. Mere ownership of forests that are already growing does not count.

Under the MLP, however, a company could effectively claim removals, which serve as the equivalent of credits for that company, without meeting these criteria. It could simply acquire or just lease already-growing forests. (This is not theoretical as companies have been accused of doing precisely this by leasing African forests.) Offsets could also be legally structured as joint ventures, with the joint venture documents assigning lease of land to the company seeking the offset. That would allow removals to count for Scope 1 without any action to achieve anthropogenic removals.

None of the proposed restrictions would avoid these inherently fundamental problems:

- A prohibition on offsetting fossil emissions does not prevent inappropriate offsetting of emissions from agricultural land clearing, wood harvests, and agriculture production emissions.
- Prohibitions on selling these removals as credits misstates the issue. The problem is not that companies could otherwise sell credits. Offset standards would prevent that on their own. The problem is that companies can effectively offset their own emissions without meeting offset standards just by leasing already growing forests or by structuring offset purchases as joint ventures.

There are far more harmful consequences in applying the MLP at the product and corporate levels than at the national level.

The main argument for applying the MLP to companies is that countries have been allowed to do so at the national level, even though ABA accounting is used in scientific assessments included in the IPCC. However, this argument ignores that the MLP has <u>not</u> been used for product level or company accounting.

Use of the MLP is dramatically more harmful at the corporate level than at the national level for several reasons:

- *Even under the MLP at the national level, harvesting wood causes emissions while under Scope 3, companies will typically count wood harvests as removals*. At the national level, the MLP gives countries an unfair carbon sink that reduces

their total net emissions. Yet, the more wood harvested, the lower a country's forest carbon sink, so the higher its net emissions. By contrast, under the MLP, uses of wood products from a sourcing area with net removals count as carbon negative. By analogy, the MLP allows countries to start a race overall around 25% closer to the finish line, but they are still penalized if they run in the opposite direction. For Scope 3, the MLP rewards companies for running in the wrong direction.

- *For most countries, scientists tolerated the MLP because its use has only a very modest effect, but for companies, it can cancel out all land-based emissions.* The way the MLP proxy works, so long as the passive carbon sink is only a relatively modest percentage of its emissions, which is true of most countries, the sink has only small effects on emission reduction targets. (This is due in part because the passive carbon sink is factored both into the baseline and into the target years. See the math example in the footnote.[2]) (This is precisely the rationale offered by scientists for original use of the MLP at national level, and also why scientists have called in effect for not using it as mitigation targets expand.) For companies, however, improperly credited sinks can easily cancel out 100% of land-sector emissions.

- *Countries cannot change the sink by changing their borders, but companies can.* Unlike countries, companies can therefore reduce their emissions just by leasing already-growing forests.

Section 3: Practicalities

Although the MLP is claimed to at least be more easily measured, the MLP cannot be practically applied to Scope 3 except by declaring most wood carbon negative while the ABA can reasonably estimate the net effects of all wood use.

The main argument for the MLP has been that measuring changes in carbon stocks in a particular area, regardless of cause, is easier and more accurate than assessing the effects of wood harvests and management. For large forestry companies, that is probably

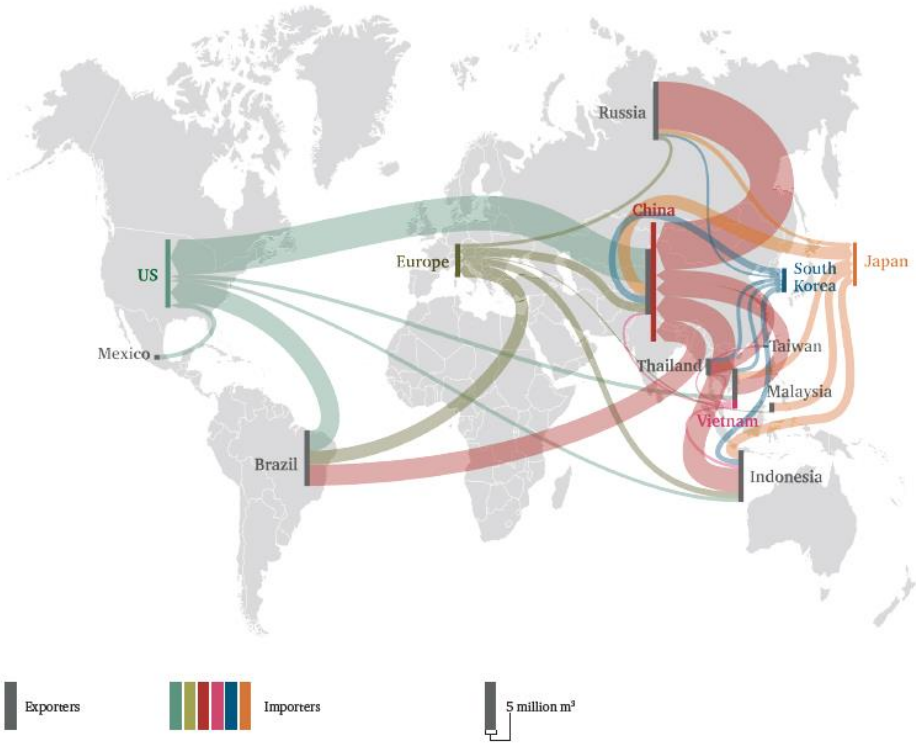
[2] The key defense of the MLP at the national level is that the passive forest carbon sink is incorporated into both the baseline year and the target year for mitigation. As a result, if the sink is modest, the effect on targets is even more modest. Consider an example like the U.S. in which the carbon sink is roughly 10% of national emissions. For mathematical ease, we'll assume that the U.S. had emissions of 100 million tons in 1990. Under this example, the U.S. would report 90 million tons only. If it makes a commitment to reduce emissions by 20% by 2020, it must therefore reduce emissions to 72 million tons, an 18-million-ton reduction. Without counting the passive forest carbon sink, it would reduce emissions to 80 million tons, a 20-million-ton reduction. The difference is only 2 million tons. However, if the U.S. only had 10 million tons of emissions, the passive forest carbon sink would improperly cancel out all its emissions. This explains why scientists have only recently focused heavily on the MLP as it becomes highly significant mainly when countries are claiming to have plans to have zero emissions.

true. It is easier; it is just not an accurate representation of the effects of their harvests and management. For analogous reasons, it is easier to measure changes in life expectancies in a whole population than to measure the effect of a medical treatment, but life overall expectancies don't reveal the effectiveness or harm of that treatment.

Regardless, for Scope 3, the MLP has never been applied and cannot practically work for most wood. Scope 3 applies to all companies purchasing wood products at every supply stage. Although it might be possible for mills to trace products to their sources, and perhaps some large companies such as Ikea can know the general geographical area of their wood sources, for most companies, even this level of tracing will be impossible. Consider a Walmart or any other large retailer, let alone smaller scale retailers, which purchase many wood products from many sources. This is particularly true because large quantities of wood products are exported from Asia using imported wood (see figure 2). As much as 30% of global wood may be illegal. The inability to trace wood to particular harvest locations is not fundamentally different from most agricultural products, and Scope 3 has to work regardless of the level of traceability.

Using the MLP leaves only one possibility: Most wood products must be assigned global emissions factors, or at best, some mix of national emission factors. Because global forests are growing overall due to climate change, that would designate most wood products to be carbon negative.

Figure 2: Global trade in wood and wood products in 2013



Source: Chatham House (Hoare 2015)

By contrast, the ABA approach can work even for products whose wood sources cannot be traced at all or at best to national sources. For every region, and nearly all countries, there are at least rough, reasonable estimates of relative growth rates of harvested and unharvested forests, plantation growth rates, and various harvest and wood use transformation efficiencies. Models have combined these inputs to estimate the effects of wood product harvest and forest management. These are available at global levels, such as in (Peng et al. 2023), and higher resolution, country-specific and subnational models are also available (see papers cited in Appendix A).

Proposed MLP restrictions leave no method for Scope 3 accounting for wood that cannot be traced.

To avoid recognizing that the MLP designates virtually all wood as carbon negative, the final MLP proposal would restrict the award of removals to products that could be more precisely traced. Because the wording is vague, exactly what the tracing requirement would exist remains unclear. And for reasons discussed throughout this memorandum, even relatively precise tracing would not solve the double-counting problems. But if such a tracing requirement has effect, this presumably means that the MLP should not be used in Scope 3 for products that could not be traced to some relatively smaller sourcing area.

Critically, however, the proposal offers no alternative method of accounting for those wood products that cannot be traced. This is not an accidental emission but reflects the fundamental limitations in use of the MLP discussed above. Except by just allowing all untraceable wood products to be designated as carbon negative because of the global forest carbon sink, the MLP cannot work for most wood products that cannot be traced to small sourcing areas.

Proposals to use the MLP for the inventory while developing an alternative accounting system for target-setting would not avoid the fundamental problems with the MLP and would create contradictory results if the alternative is credible.

In the most updated version, the MLP supporters have also proposed that while still using the MLP for the GHG inventory for both Scope 1 and Scope 3, some future, separate "consequential" form of accounting will be developed for target-setting. This separate accounting is vague.

We emphasize that we have no objection to including information on changes in carbon stocks on company-controlled lands regardless of whether they are anthropogenic or not. Providing such information is a separate component of the ABA proposal, and mere reporting is a useful way of communicating this information. What the Protocol does is accounting and the MLP has no value for accounting.

Adding some kind of consequential accounting and for target-setting and other ad hoc restrictions cannot redress fundamentally flawed accounting. For example:

- For wood products, even if companies can "trace" them to some managed sourcing areas, these wood products will still generally be carbon negative due

both: (a) to climate change itself, and (b) to regrowth of forests in much of the word from prior harvests and due to agricultural abandonment. As one result – and in contradiction to writings of hundreds of scientists cited below-- harvesting wood for power plants will be considered carbon negative even prior to factoring in fossil energy avoidance.

- Even if companies were not allowed to separately advertise that they are "carbon neutral," what their inventories will generally report is that the forest lands they own, and their use of wood products have negative emissions. Their inventory overall may still falsely claim zero emissions or negative emissions. Not adding the sentence, "We are carbon neutral" is irrelevant.
- The inventory itself will still be inaccurate and encourage perverse actions that increase emissions on the grounds that they reduce them.
- For wood products that cannot be traced to some sourcing area, which remains undefined, there is still no accounting method provided for the inventory.
- Using two different accounting system that generate inconsistent results cannot be useful.

Activity-based accounting is the only scientifically credible approach to filter out both non-anthropogenic effects and inappropriate grandfathering

The passive carbon sink is itself primarily measured by the IPCC and others using activity-based-accounting. Emissions due to forestry are estimated and they are deducted from estimated forest growth.

One of the MLP suggestions is that in some future, to-be-developed alternative accounting system, the passive carbon sink could be filtered out of MLP measurements using dynamic global vegetation models (DVGMs). However, this is not scientifically credible.

First, even if it were possible to filter out the passive forest carbon sink, doing so would not filter out the effects of other human activities in a sourcing area, or the effects of regrowth from prior harvests. Both must be filtered out to identify the effects of wood harvest and forest management.

Second, DVGMs are both too coarse and too differing from each other for this purpose. They have only very broad vegetation categories, such as temperate deciduous forests. And different DVGMs generate widely different results (Pugh et al. 2020) (Tschumi et al. 2023) (Sitch et al. 2008). Although collectively DVGMs help to confirm the large forest carbon sink, they lack the reliability or resolution to assess such the effects of climate change for any particular forest areas.

Third, even if DVGMs were more appropriate, their predicted vegetation responses vary with changes in rainfall patterns and temperature. To filter out the effects of climate change on vegetation growth, it would therefore first be necessary to use climate models to separate the effects climate change and natural variability on rainfall and temperature in

specific locations and for specific years. Climate models cannot do so with meaningful reliability at this time.

In short, there is no credible way other than ABA accounting to separate anthropogenic form non-anthropogenic effects.

Section 4: Scientific Opinion

Overwhelming scientific opinion opposes claims that forest growth in broader areas alters the climate effects of wood harvests, as particularly illustrated by scientific discussion of forest bioenergy.

There is a strong scientific consensus that the MLP cannot be used for accounting.

First, in its scientific assessments of emissions, the IPCC uses activity-based models of forestry activity. (See, e.g., (Jia and Shevliakova 2019) (Houghton 2005)·(Houghton and Nassikas 2017) (Hansis, Davis, and Pongratz 2015). Typical estimates are that new wood harvests generate in the range of 3 billion tons of carbon dioxide emissions per year.

Second, because the MLP creates largescale double counting, a series of recent papers in Nature journals have called for not using the MLP in accounting for reaching climate targets (Allen et al. 2024) (Grassi et al. 2021) (Gidden et al. 2023) (Grassi et al. 2023). The MLP group has made much of the idea that these papers did not explicitly call for getting rid of the MLP at the national level, but they made clear that was for practical reasons. As written in Allen et al. (2024), "It is difficult to justify definitions of balance and net zero in individual commitments that, if replicated globally, would not deliver the Paris Agreement goal of limiting global warming. Yet it will also be difficult to revise UNFCCC reporting rules to exclude all passive CO_2 uptake from anthropogenic CO2 removals. There are genuine issues of capacity, resources and pragmatism in bringing all countries on board with reporting and accounting following IPCC guidelines…" That is why the paper calls essentially just for countries to shift to something else for what is to become the real accounting, namely that used to formulate targets and judge progress on reducing emissions. In effect, this would make the MLP reports just reporting (in contrast to use here, where it would provide accounting.) Allen et al. also calls for private accounting standards to avoid the MLP.

Although we are aware of no use of the MLP for products and Scope 3 emissions, which has effect of treating wood products as carbon negative, there is a history of papers assuming that wood is carbon neutral so long as broader forest areas maintain their carbon. These claims have been the basis for claims that harvesting wood to use in power plants is biogenically carbon neutral. This is inaccurate for the same reasons discussed in this memorandum as for the MLP. The fact that forests are growing in broader areas does not make wood harvest carbon neutral. As other scientists have pointed out, this is like reasoning that because companies in a country are profitable overall, a money-losing company is also profitable.

In response to these approaches, roughly 800 scientists wrote a letter in 2018 to the European Parliament, and more than 500 scientists wrote a letter in 2021. The Science Committee of the European Environmental Agency (Haberl et al. 2012), and the organization representing all 27 European academies of science (EASAC 2018) have also published opinions disputing these claims. The MLP has even more adverse effects, because wood is not just treated as carbon neutral but carbon negative. That is why the European Academies have also sent a letter to the GHGP Secretariat and posted on their website, objecting to the MLP and calling, in effect, for activity-based accounting, and also why more than 200 scientists sent a letter the GHG Secretariat expressing similar views (Appendix B). We agree.

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Mr. Peter Bakker
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Re: Draft GHG Protocol

Dear Mr. Dasgupta and Mr. Bakker,

The Greenhouse Gas Protocol plays a valuable role guiding companies around the world regarding how to accurately assess their greenhouse gas emissions. As your organizations are the ultimate authors of this guidance, this role gives your organizations a critical responsibility to ensure its scientific accuracy. We appreciate that your organizations for the last several years have been revising the portion of the guidance that deals with the land sector, including guidance for allowing companies to count carbon sequestration known as "removals" in their overall carbon balances. Because we understand that some fundamental questions remain to be decided, we write to offer guidance on some key questions.

Understanding the sources and importance of the world's large forest carbon sink is a basic starting point for accurately accounting for the effects of human activity on terrestrial carbon. A vast scientific literature evaluates the effects of increased carbon dioxide, longer growing seasons in temporal and boreal forests, and other effects of climate change itself. Despite some uncertainties, in general, these effects are estimated to remove 25% or more of the additional carbon people add to the atmosphere. At a level now estimated around 10 gigatons of CO_2, this sink is roughly equivalent to the emissions from the land sector. In addition to these removals,

regrowth of forests from harvests cleared or harvested before modern climate treaties took effect in 1990 also play a significant role in holding down net global emissions. This combined forest carbon sink is therefore not attributable to the mitigation activities of landowners or to governments, and in that sense, is considered non-anthropogenic or only indirectly anthropogenic. The CO2 fertilization effect is also built into estimates of global warming potential, which means it is attributed to everyone who emits carbon. Mitigation pathways to stabilize the climate account for these removals, without which climate change would be even worse.

This vast carbon sink cannot be attributed just to those who own, lease or otherwise control forests without double-counting. Allowing companies to claim these removals would mean companies could use them to cancel out their other emissions, and even potentially claim to be carbon neutral or carbon negative while fully maintaining or possibly even increasing their own emissions. Companies who do not now own forests, at least in the land sector, would also be able to buy existing, growing forests or lease some of the three quarters of global forests owned by governments and avoid the need to mitigate their emissions. Far from protecting forests, such a rule would threaten them by allowing companies to convert or harvest more forests, emit their carbon, while claiming carbon neutrality just because they control other forests. Applied globally, the entire land sector could appear to be carbon neutral even as it contributes roughly one quarter of the world's emissions.

If this same approach were applied to estimate the emissions in a company's supply chain, i.e., Scope 3 emissions, it would have the effect of inaccurately claiming that harvesting trees for bioenergy or any other purpose is carbon neutral or maybe even carbon negative. That is because carbon sequestered by ongoing growth of forest in broad sourcing areas may be attributed to the wood products generated by harvesting, potentially cancelling out the actual effects on emissions. Doing so would even treat as carbon neutral the harvesting and burning of trees for energy. But the mere fact that other parts of a forest or broad forest areas are growing cannot alter the climate consequences of harvesting wood because this growth would occur anyway. Hundreds of scientists have previously so stated in letters to the European commission and to country Presidents. In these letters, scientists have specifically noted that large numbers of scientific papers have found that the harvest and burning of wood is likely to increase carbon in the atmosphere for decades to centuries. Properly estimating the effects of wood harvest and use requires estimating the effect of changes in atmospheric greenhouse gases specifically due to the activities of harvesting and using wood and of associated changes in forest management to do so.

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We also urge that the final guidance properly recognize the climate costs of increasing the use of land for agriculture, including through the expansion of crop-based biofuels. For example, if, as is the convention, emissions from the combustion of biomass for energy are not counted as energy emissions, the climate effects of diverting cropland from food production to biofuels must be counted. Although different scientific approaches have been offered to estimate these climate costs, there is broad recognition that diversion of existing agricultural land to alternative uses has climate effects that must be factored into any claims that doing so generates climate reductions. Claiming otherwise would create perverse incentives that cause more of the world's finite land area to be devoted to agricultural use and thereby threaten the world's forests and biodiversity.

We encourage you to pursue sound alternative rules that properly account for the effects of human activities on terrestrial carbon storage and the biosphere.

Yours sincerely,

Peter Raven

Director Emeritus Missouri Botanical Society, St. Louis, Missouri USA,
Winner U.S. National Medal of Science,
former President of American Association for Advancement of Science

Andrew Balmford FRS

Professor of Conservation Science, University of Cambridge

Note: Signatures of 213 other scientists not shown. The ISB might request the whole letter.