



SUBMISSION BY GREENPEACE<sup>1</sup>  
ON ISSUES RELATED TO MODALITIES  
FOR INCLUDING AFFORESTATION AND REFORESTATION  
UNDER ARTICLE 12.

NON-PERMANENCE OF SINKS

20<sup>th</sup> August 2002

**ABSTRACT**

- The relative effectiveness of proposals to address non-permanence of afforestation and reforestation projects under the CDM and related accounting is discussed. This paper complements a separate Climate Action Network (CAN) submission, that deals with equally important issues such as leakage, impacts on biodiversity, socio-economic impacts, uncertainties, and other key problems. Greenpeace contributed to and fully supports the CAN submission.
- There are three main accounting proposals on the table,
  1. the class of “equivalence-time” based accounting proposals,
  2. the original Colombian proposal, and
  3. The so-called “T-CER<sub>5</sub>” approach.
- None of the accounting proposals fully resolves the issue of non-permanence, since non-permanence is an inherent feature of sinks (which cannot be resolved by any accounting proposal). At the best, accounting schemes can only partly ameliorate the non-permanence problem, some better than others.
- The “equivalence” based approaches (1) and the original Colombian proposal (2) fail to significantly ameliorate the non-permanence problem and should be rejected.
- The modified Colombian proposal “T-CER<sub>5</sub>” with a credit validity time of one commitment period, instead of 30 years, (3) overcomes the principal shortcomings of the other proposals.
- In addition to an accounting scheme, a project screening requirement must rule out short-term unsustainable projects in order to address non-permanence (i.e. industrial mono-culture plantations have to be excluded),

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## **PREAMBLE**

Parties and other organisations have been invited to present their views on the issues related to modalities for including afforestation and reforestation under the CDM. Greenpeace International welcomes this opportunity to submit its views and concerns to the UNFCCC Secretariat for distribution to policy makers.

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## **I. INTRODUCTION: SINKS ARE NOT THE SOLUTION**

1. Greenpeace continues to believe that the inclusion of sinks under the Kyoto Protocol and under the CDM is fundamentally flawed. Accounting for sinks under the terms of the Kyoto Protocol is not an effective way to tackle the pressing problem of long-term climate change. A drastic and immediate reduction of our fossil fuel related greenhouse gas emissions is urgently needed. The use of sinks projects only diverts political and financial resources away from this enormous and urgent task. Thus, Greenpeace strongly encourages countries to meet their obligations under the Kyoto Protocol without using sinks, no matter whether in Annex B countries (Art. 3.4/Art. 6) or in Non-Annex B countries (Art. 12)<sup>2</sup>.
2. Nevertheless, given that parties have agreed to make some CDM sink activities potentially eligible for projects for the first commitment period, it is important that substantial weight is given to Article 12.5(b) of the Kyoto Protocol, which requires that these projects provide “Real, measurable, and long-term benefits related to the mitigation of climate change”.
3. Accounting for afforestation and reforestation under the CDM has only been allowed, on the binding condition that such projects meet a number of crucially important requirements. Specifically, CDM sink modalities must exclude any projects that are: non-additional; harm biodiversity or natural ecosystems; have negative socio-economic or environmental impacts; are designed to be only short-term; cause high negative leakage; are subject to high uncertainties; and/or do not follow the principles laid out in the preamble of decision -/CMP.1 (11/CP.7- land use, land-use change and forestry<sup>3</sup>). Accounting rules have to assure that uncertainty, leakage and non-permanence are adequately addressed for all eligible projects.
4. In Greenpeace’s view, no new sink projects should be allowed in the second commitment period. This is particularly urgent if sink projects prove unable to meet the crucially important requirements as listed in para 3. Alternatively, parties may fail to design adequate modalities or those modalities will not be adequately enforced. In both cases, the “first commitment period only” experiment of sinks in the CDM should clearly not be prolonged. Thus, any adopted accounting scheme has to provide the opportunity for the Kyoto Protocol to be designed “CDM sink free” in the second and subsequent commitment periods.
5. Mono-culture industrial tree plantations have clearly to be excluded from CDM project eligibility.

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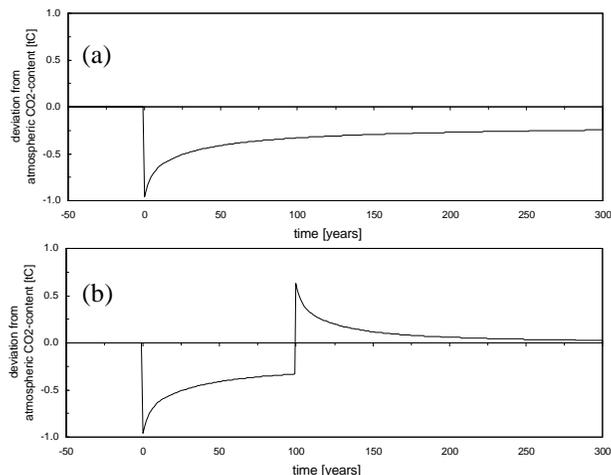
<sup>2</sup> In this regard, it should be noted that halting deforestation and supporting sustainable forest management are major campaigns of Greenpeace (see [www.greenpeace.org](http://www.greenpeace.org) > campaigns > forests).

<sup>3</sup> see (FCCC/CP/2001/13/Add.1, page 56)

## II. WHY IS NON-PERMANENCE A PROBLEM?

6. It is often suggested that establishing forests or deferring deforestation for some period of time would be an effective tool to address climate change and should therefore be accounted under the Kyoto Protocol. This is often based on the assumption that temporary (non-permanent) carbon storage lowers temperature-levels and climate-damages “at each point in time” in the future.

7. Unfortunately, this assumption is wrong, since it does not take account of the carbon cycle. Although causing climatic benefits in the near term, temporary carbon storage will - in the long term - increase CO<sub>2</sub> concentrations and temperature-levels. Consequently, higher climate change related damages could be expected in the future (see Figure 1)<sup>4</sup>.



**Figure 1**

(a) Change in atmospheric CO<sub>2</sub>-content due to a CO<sub>2</sub> emission reduction or permanent carbon storage

(b) Change in atmospheric CO<sub>2</sub> content due to temporary carbon storage of 100 years.

8. Even if any re-emissions of sequestered carbon will be fully accounted for in the future, the inherent problem of the non-permanence of sinks is not solved. This is due to several reasons:

- The obligation to reduce emissions is simply delayed into the future, increasing the burden of mitigation for future generations.
- Since future emission reduction targets are not yet set, parties might be unwilling to negotiate deep emission reductions in anticipation of debited re-emissions of former sink projects.
- Furthermore, the urgently needed incentives for innovation and dissemination of technological and social innovations for energy saving will be reduced. If we reduce this early action in the energy sector, we forgo much needed time to increase our ability for much more drastic emission cuts in the future. Learning by doing is the only viable way to develop and disseminate emission reducing technologies and behaviours in due time.

<sup>4</sup> see e.g. Greenpeace background paper, Meinshausen, M. and Hare, B. (2002) “Temporary sinks do not cause permanent climatic benefits”, available online at [www.greenpeace.org > campaigns > climate > documents](http://www.greenpeace.org/campaigns/climate/documents)

9. Simply stated, only permanent, additional carbon storage is equivalent to a reduced emission<sup>5</sup>. Sometimes, it is even suggested that a temporary carbon storage followed by a permanent emission reduction in the future or another carbon sequestration would as well be equivalent to a permanent emission reduction today. This is – theoretically – correct. However, in practice, the future emission reduction will have to be done by future generations, which will face much more stringent emission reduction targets than ourselves anyway. Thus, whether the future emission reduction will be truly additional, thereby offsetting the re-emission of sequestered carbon is highly questionable.

### **III. CRITERIA TO ASSESS NON-PERMANENCE POLICIES**

10. Acceptable modalities and accounting proposals for addressing non-permanence must meet certain basic criteria. Among these:

Does the accounting scheme...

- fully account for any re-emission of carbon, regardless of the cause for the re-emission (see Box 1 below)?
- provide strong incentives for buyer's and project developers for periodical monitoring of carbon stocks?
- provide ongoing incentives for maintaining the carbon stock in the long-term?
- provide the option for a "CDM sink-free" Kyoto Protocol in future commitment periods?

If the answer to any of these questions is negative then the accounting proposal is clearly inappropriate for sinks under the CDM.

11. In addition to the application of an appropriate accounting scheme, only those sink projects that have the potential to deliver long term (i.e., several hundred years) sustainable carbon storage must be eligible<sup>6</sup>.

12. Of course, the full requirements for appropriate modalities go far beyond non-permanence. Baseline definitions, biodiversity issues, socio-economic impacts, perverse incentives for deforestation, leakage effects and uncertainty are among other crucial issues that have to be addressed. These are further discussed in the CAN submission.

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<sup>5</sup> It is important to note that this notion "only a permanent, additional carbon storage is equivalent to a reduced emission" does not take account of the important "learning by doing" effect of emission reductions. See last bullet point of paragraph 8.

<sup>6</sup> For more on this, see paragraphs 26, 27 and 28 of the complementing Climate Action Network (CAN) submission.

**Box 1: Extract from the IPCC Special Report on LULUCF:**

“Enhancement of carbon stocks resulting from land use, land-use change, and forestry activities is potentially reversible through human activities, disturbances, or environmental change, including climate change. This potential reversibility is a characteristic feature of LULUCF activities in contrast to activities in other sectors. This potential reversibility and non-permanence of stocks may require attention with respect to accounting, for example, by ensuring that any credit for enhanced carbon stocks is balanced by accounting for any subsequent reductions in those carbon stocks, regardless of the cause.”

[IPCC SP LULUCF, Summary for Policymakers, paragraph 40]. See as well other relevant sections of IPCC SP LULUCF, such as paragraphs 78 to 82 of Summary for Policymakers.

#### IV. EVALUATION OF ACCOUNTING PROPOSALS

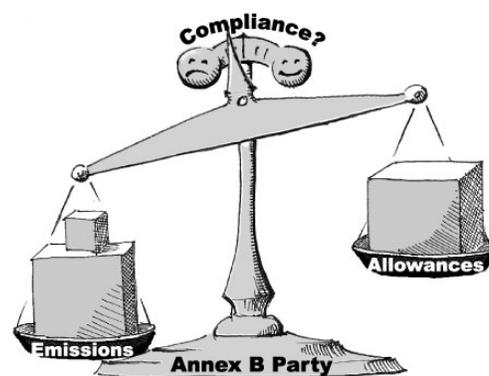
##### A. Illustrations: The basic idea.

13. The following simplified illustrations highlight the concepts behind different accounting proposals for sinks under the CDM. Clearly, the illustrations do not capture the technical details at the registry level. For example, the sub-components of the national registry, the holding, retirement and cancellation account are not displayed separately (see fig 2).

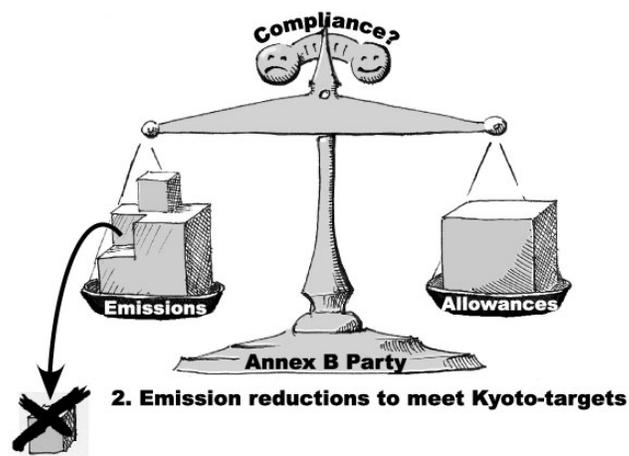
14. Roughly speaking, the sum of the holding and the retirement account of an Annex B Party is symbolised by the right scale of the balances “Allowances”. The left scale of the balances, “Emissions”, illustrates the actual domestic emissions of an Annex B Party. A Party is in compliance with the Kyoto Protocol, if it holds at least as much emission allowances as it causes emissions (upper scale indicator vertical or leant to the right).

15. In general, a Party comes into compliance with the Kyoto Protocol, if it reduces domestic emissions (Figure 2) in order to bring emissions and emission allowances into balance.

Accounting for sinks under the CDM is another possibility to comply with the Kyoto Protocols emission targets, illustrated by the following figures (Figure 3 to Figure 5).



**1. More emissions than emission allowances**



**2. Emission reductions to meet Kyoto-targets**

**Figure 2 – The basic concept of the illustrations.**

## **B.1. “Equivalence based” Accounting.**

### Theory

16. Equivalence based accounting (e.g. “tonne-year”) rests on the assumption that the sequestration and subsequent storage of 1 tonne of carbon for a certain “equivalence” time (e.g. 46 or 100 years) would offset 1 tonne of emissions – no matter whether the stored tonne of carbon is re-emitted after the “equivalence” time, or not. In the original proposal, the project generates a flux of credits over time (yearly credits equal average mass of additionally stored carbon divided by the equivalence time in years). Figure 3 displays a “investor-friendly” modification, where all credits that the project is likely to create will be given upfront.

### Problems

17. *Scientifically wrong foundation:* The assumption, that there exists something like a finite “equivalence” time is scientifically wrong. Only an additional sequestration and subsequent permanent storage can offset an emission<sup>7</sup>.

18. *No long-term climatic benefits from temporary carbon storage:* Often claimed, but simply wrong, is the argument that “the temperature increase will be delayed forever” due to temporary carbon storage. As well, any justifications for the “equivalence” based accounting scheme by reference to the 100 year time horizon for global warming potential (GWP) calculations also do not hold: the 100 year time horizon is a floating time horizon from the point of emissions onwards, which is not equivalent to disregarding any emissions that occur in 100 years from now – as many “equivalence” based accounting schemes suggests.

19. *No monitoring/verification incentives.* In the case that credits are given upfront there are no incentives for either the project developer or the buyer of the credits to verify and monitor whether the carbon continues to be sequestered and stored (illustrated by grey shaded trees in Figure 3).

20. *Different to Annex B sink accounting:* Any equivalence based accounting scheme would lead to a fundamentally different treatment of CDM sinks compared to those in Annex B countries. In Annex B countries, full debits are – in principal – given for re-emissions, which wouldn’t be the case for CDM afforestation and reforestation projects (see section G).

21. Thus, any “equivalence” based accounting schemes (“tonne-year” approach and modifications thereof) are clearly not appropriate for CDM sink accounting.

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<sup>7</sup> note qualifying statement in footnote 5.

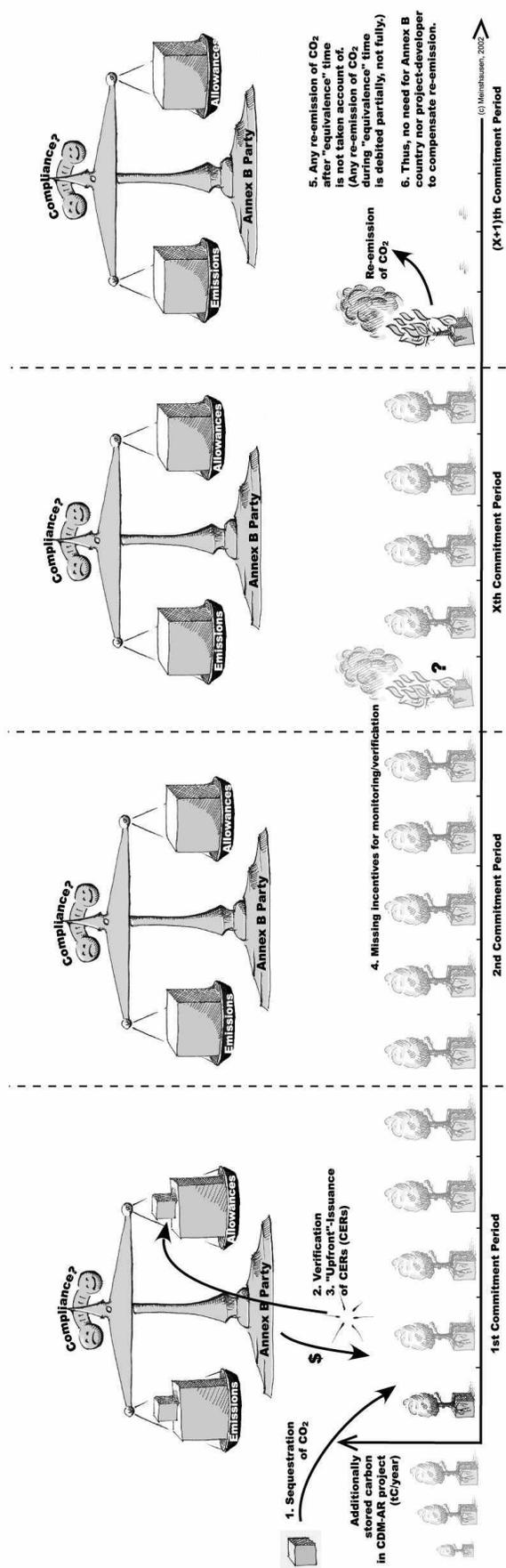


Figure 3 - The "Equivalence" based accounting proposals

## **B.2. The original “Colombian” proposal.**

### Theory

22. The original Colombian proposal (FCCC/SBSTA/2000/MISC8) intends to address non-permanence of sink projects by issuing “expiring” credits. These expiring credits have to be replaced by another credit after their “expiration” lifetime. The credit lifetime can for example be the envisaged project lifetime (e.g. 30 years). Thus, assuming (a) that the additionally stored carbon in the project is not re-emitted before the end of the credit lifetime and (b) that the expiring credit would be offset by a truly additional emission reduction, the Colombian proposal could – in theory – offer an accounting scheme which overcomes some shortcomings of the “equivalence” based accounting proposal.

### Problems

23. Although much better than the “equivalence” based accounting schemes, the original Colombian proposal does not solve the permanence issue at all:
- *Reduction obligations deferred into far future:* The obligation to reduce emissions is simply deferred by some decades into the future. This is not acceptable, given that future generations face the need for much more stringent emission cuts anyway.
  - *Diminishing incentives for strong future targets.* In anticipation of expiring credits, which will have to be offset, countries might be unwilling to commit themselves to stringent emission reduction targets in the 2<sup>nd</sup> and subsequent commitment periods<sup>8</sup>.
  - *No monitoring/verification incentives.* There is no inherent incentive structure - for either the investor country or the project developer - to monitor and verify the additional carbon stocks in the project once the credits have been given (illustrated by grey shaded trees in Figure 4).
24. Thus, the original Colombian proposal is clearly not appropriate as an accounting scheme for sinks under the CDM.

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<sup>8</sup> This problem of sinks, i.e. diminishing incentives for strong future targets, is created by the non-permanent nature of sinks rather than by the accounting proposal, which reflects this non-permanent nature. Furthermore note that there are additional shortcomings of sinks, such as reduced technological and social energy saving innovation and dissemination, that cannot be solved by the proposed accounting schemes.



### **B.3. Modified “Colombian” proposal (“T-CER<sub>5</sub>”).**

#### Theory

25. A modified version of the Colombian proposal simply adjusts the expiration lifetime of the “temporary credits” (T-CERs or T-RMUs) to the length of one commitment period. Thus, for a multi-period CDM afforestation/reforestation project, each 5 years new T-CERs will be issued according to the verified amount of additionally stored carbon (see points 2;3 5;6 and 8;9 in Figure 5). In the buyer’s registry, the expired T-CERs have to be replaced after the expiration lifetime: in the 2nd commitment period (CP) emission credits are cancelled - equivalent to the amount of expired T-CERs from the 1st CP.

26. Thus, this modified version is basically identical to the original Colombian proposal except that the expiration lifetime of the credits is fixed to one commitment period. Assuming the carbon will be additionally stored over 30 years, the net-effect of the Colombian proposal and T-CER<sub>5</sub> accounting is equivalent, since expiring T-CERs are just balanced by newly issued T-CERs throughout the project lifetime.

27. One single T-CER credit can be seen as an allowance to delay an emission reduction until the next commitment period. When no additionally stored carbon can be verified any more (in the X+1th CP in Figure 5), no new T-CERs will be issued. Although no direct debits are assigned to the re-emission, the net-effect is in fact as if debits were given: expiring T-CERs from the first commitment period have to be replaced. In effect, the T-CER approach more resembles the stock-change accounting schemes for sinks in Annex B countries than the other accounting proposals (similar verification incentive each commitment period; full debits for re-emissions – cp. Figure 5 and Figure 6).

#### Outstanding Issues

28. Although the T-CER approach is significantly better than both the original Colombian proposal and the “equivalence” based approaches, there are several outstanding issues that have to be resolved, such as:

- *Provisions must allow for exclusion of sinks:* Assuming it turns out that the issues of additionality, leakage, non-permanence, uncertainties, socio-economic and environmental (biodiversity) impacts cannot be satisfactorily resolved, there mustn’t be any sinks in the CDM for the 2<sup>nd</sup> CP. Thus, provisions have to allow a “CDM-sink-free” Kyoto Protocol at any time in the future.
- *Diminishing incentives for strong future targets.* In anticipation of expiring credits, which will have to be offset, countries might be unwilling to commit

themselves to stringent emission reduction targets in the 2<sup>nd</sup> and subsequent commitment periods<sup>9</sup>.

- *No Banking*: In line with the provisions for RMU's, no sink credits (including the T-CERs) should be bankable. Or in other words, T-CERs must only be used towards compliance in the commitment period of their issuance.
- *Replacement options*: whether T-CERs can be replaced by T-CERs or only by non-temporary credits does not seem to be of practical accounting importance, since credits can be "swapped" any time. However, accounting provisions at the registry level might require that expiring T-CERs are offset by cancelling a non-temporary emission credit. A new T-CERs will then replace the cancelled non-temporary credit and the net-effect is the same, whether T-CERs are directly replaced by T-CERs or not.
- *Leakage, uncertainty, biodiversity impacts problems are not resolved*: Obviously, the T-CER approach, as well as the other two accounting proposals, does not resolve the crucially important problems that are associated with CDM sinks. Thus, stringent, watertight modalities to prevent leakage, minimise uncertainties, exclude negative impacts on biodiversity etc are still urgently needed (see separate CAN-submission).

29. Like all other accounting proposals, the T-CER approach does not resolve the fundamental non-permanence problem of sinks. However, the T-CER approach seems, for the meantime, to be the best accounting proposal to address and ameliorate the non-permanence problem.

#### **B.4. Accounting for sinks under Art. 3.3/3.4 in Annex B countries.**

30. *For comparison reasons only, a simplified illustration of the general concept of sink crediting in Annex B countries is given. This illustration (Figure 6) does not highlight the numerous problems and shortcoming attached to crediting of sinks under Art. 3.3, 3.4 and Art. 6.*

#### Theory

31. An Annex B Party can issue emission credits (in this case called "Removal Units" - RMUs) for absorbing greenhouse gases due to agriculture and forest management activities (Art. 3.4) as well as afforestation, reforestation (Art. 3.3). Thus, these emissions credits add to the overall allowance for domestic greenhouse gas emissions from the energy sector, roughly speaking. If terrestrial carbon stocks decrease again, which means that sequestered carbon is re-emitted to the atmosphere, the Annex B country has to undertake additional emission reductions in order to offset those re-emissions from forests and agricultural areas. Figure 6 best fits accounting of Art. 3.3 afforestation and reforestation activities. A slightly modified accounting approach is, for example, applied to Art. 3.4 agricultural activities (net-net accounting).

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<sup>9</sup> see footnote 8.

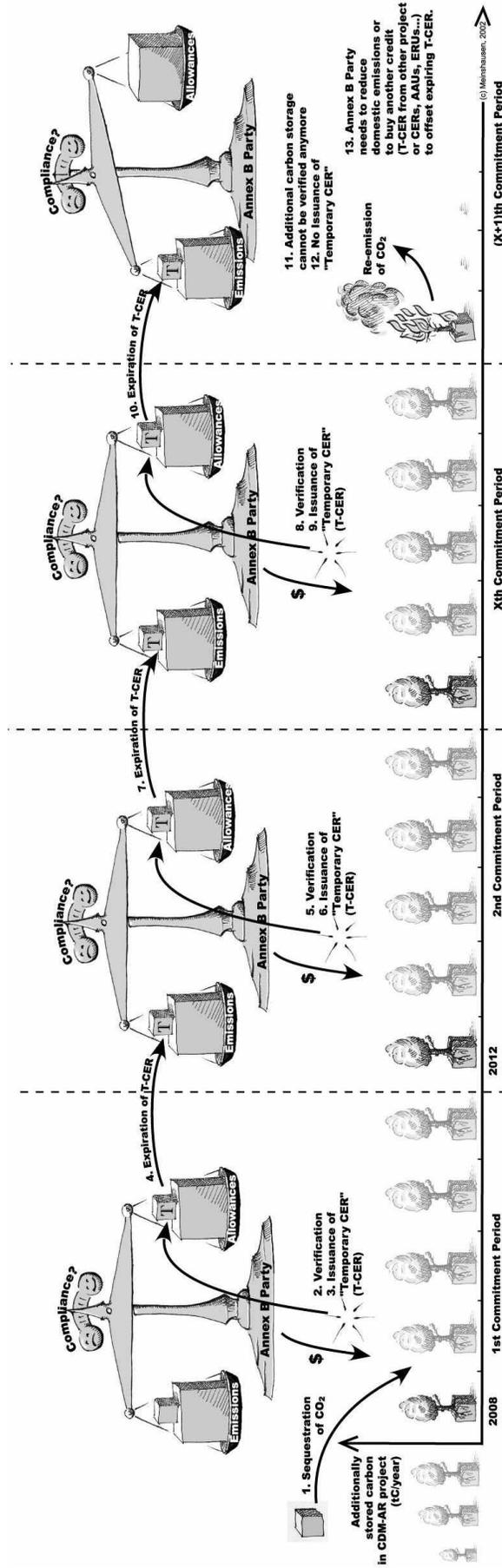


Figure 5 - T-CER - The modified 'Colombian proposal'

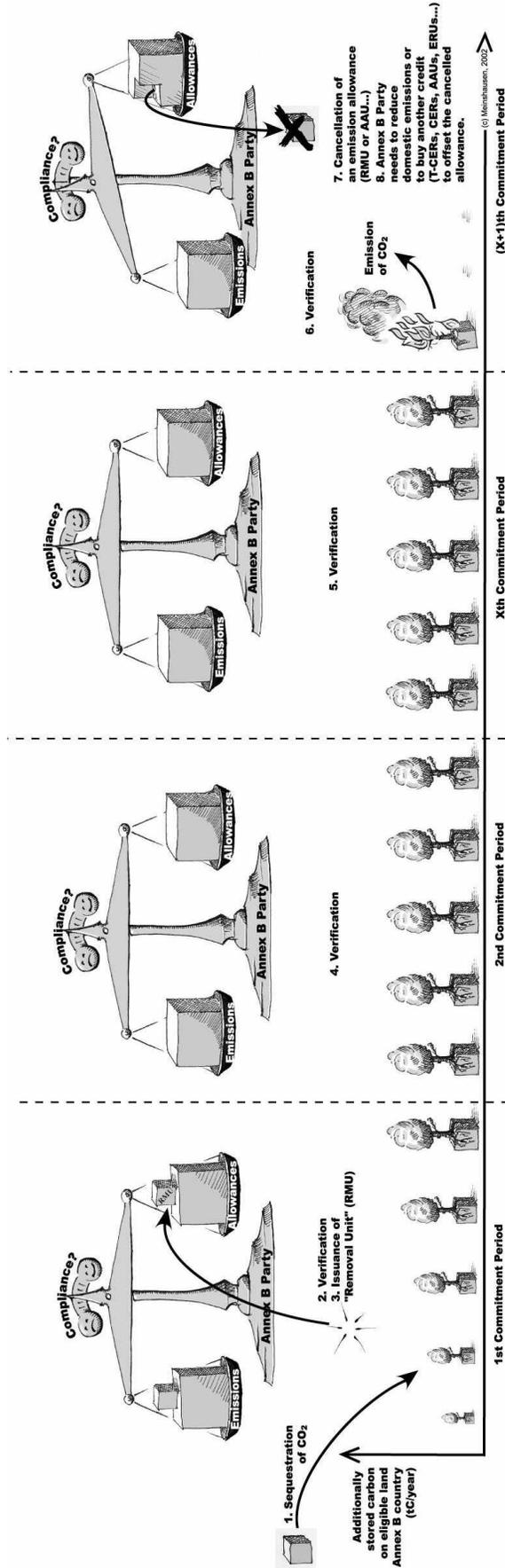


Figure 6 - Accounting for sinks under Art. 3.3/3.4 in Annex I countries

## V. CONCLUSION

32. Accounting for sinks under the Kyoto Protocol causes a number of severe problems, which is why Greenpeace and CAN had continuously warned against sinks in the past. Now, that the Bonn Agreement and Marrakech Accords include the possibility to account for afforestation and reforestation under the CDM, many proposed accounting schemes are likely to worsen these problems. For example, the original Colombian proposal simply defers emission reduction obligations far into the future. Regarding the “Equivalence-time” based accounting proposals; they fall short of any scientific basis by not debiting all re-emissions. Therefore, neither the original Colombian proposal nor any “equivalence” based approaches are acceptable.

33. Compared to these two proposals, the so-called T-CER approach, with a credit lifetime of one commitment period, offers significant improvements. Nonetheless, there are a number of outstanding issues that still have to also be resolved before this T-CER accounting scheme should be adopted. Among these,

- an additional project screening requirement must rule out short-term unsustainable projects to address non-permanence (i.e. industrial mono-culture plantations have to be excluded),
- T-CERs must only be used towards compliance in the commitment period of their issuance,
- negative impacts on biological diversity must be avoided
- and any potential leakage and uncertainties fully accounted for.

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34. For more information about Greenpeace's climate campaign, please visit [www.greenpeace.org](http://www.greenpeace.org) -> campaigns -> climate change.