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Public Comment on Baseline and Monitoring Methodology for Avoiding Planned Deforestation of Undrained Peat Swamp Forests

There are a number of issues with the methodology in its current form. In particular, the following are highlighted:

- With the level of legal uncertainty and regulatory issues that exists in Indonesia at the current time, there is huge uncertainty in determining the likely future legal land use of a particular area. A conservative approach to this is therefore needed, which is discussed in the detailed comments.
- It is difficult to assess without strong legal documentary evidence of whether a production forest would be used for natural forest management (logging), timber plantation or other plantations. Furthermore, timber plantation license holders are obliged to protect forested deep peat areas within their licensed area and deep peat is not legally available for use. Therefore, projection of future land use at a local project level is somewhat ambiguous and dependent on ongoing legal and regulatory actions by the government. This needs a thorough methodology to produce a realistic yet conservative baseline.
- The technical aspects relating to emissions from peat land are likely to overestimate baseline emissions from peat land.

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Summary p.4	Project area is in a production forest.	In Indonesia, there are three classes of production forest: (i) limited production forest, (ii) fixed production forest and (iii) production for conversion. Within (i) and (ii), only (a) harvesting of timber or (b) establishment of timber plantation is allowed with very different implications for baseline emissions, in particular from peat. For (iii) conversion to non-forest land is allowed. This has implications for the baseline / REL. See later comments.
Summary p.4	Baseline emissions – legally approved conversion rates or empirically measured historical deforestation rates observed in a reference region similar to the project area.	1. For natural forest management, actual conversion rates under a legally approved logging regime will be dependent on the standing stock of commercial timber. Peat swamp forest is known to have limited commercial stocks compared to dry land forest in the region. Furthermore, the actual off-take will depend on (a) past history of logging of the forest that may have removed commercial species and (b) logistics that are influenced by flooding and other factors that affect the over costs and therefore commercial potential of logging. In sum, a legally approved logging regime may inadequately reflect the likely potential future harvest and therefore REL. A commercial audit would better serve this purpose. 2. Historical deforestation rates in general in Indonesia have fallen in the last five years due to government action against illegal logging. If historical deforestation rates are to be used, this period should be included. 3. At the project level it can be difficult to apply a deforestation rate from a reference region as deforestation is influenced by factors such as access, differences in population densities and other factors. A remote, difficult to access project site is likely to have a low deforestation rate and if access is higher in the reference region, then the baseline will be inflated. The approach of using a reference region is not considered appropriate. Proposed approach: The actual level of historical deforestation in the

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		project area must be considered central to a historical baseline. This could then be adjusted to a future deforestation REL by (a) consideration of commercial value of the forest and likely harvesting rates for forest under natural forest management, (b) changes to access of the area as a result of planned roads and settlements and (c) potential impacts of land use change as a result of legal licensing.
Other Definitions p.8	Peat is organic soil with at least 30% organic matter and a minimum thickness of 30 cm.	A standard definition based on US and Indonesian Soil Taxonomy is typically 50cm – this will have implications for the baseline.
Applicability Conditions – p.8	Criteria before project implementation include four drivers of deforestation/degradation.	Past use for commercial forestry is not included – this should be considered for inclusion. Less than 5 percent of the former peat swamp forest in Sumatra and Kalimantan is considered primary (Miettinen & Liew 2010) and past commercial use of production forest in the 1980s and 1990s has been a significant cause of degradation of peat swamp forest.
Applicability Conditions – p.8	The project area is (1) legally designated as forest that can be converted to non-forest or production forest with lower biomass than the original forest.	The conditions for being legally designated must be specified. In Indonesia, this requires congruence between (i) the forest land use plan (*kawasan hutan*) and (ii) national and regional spatial plans. Where no congruence exists, the legal designation of the forest cannot be verified with certainty, although in practice the Department of Forestry still executes its authority over the national forest estate. In most Indonesian provinces, regional spatial plans are in the process of being completed and the legal designation of forest remains contested legally. For absolute clarity, legal designation must be clear as verified through congruence of (i) the legal forest land use plan and (ii) final legal revision of the regional spatial plan as mandated by Law No 26/2007 and contained in a Regional Regulation (*Peraturan Daerah*).
Applicability	The project area is (2) effectively at	The definition of a legally valid conversion permit for (2a) must be

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Conditions – p.8-9	threat of conversion as demonstrated by either (2a) a legally valid conversion permit on the project area by an identified agent of deforestation or (2b) the existence of three conversion permits on other areas within the union of a 250-km buffer around the project area and the jurisdiction with decision-making authority on concession permitting.	made. In Indonesia, the legal licensing of land for production purposes has four steps: (i) location permit / principle use permit (*izin lokasi/izin prinsip*), (ii) environmental impact assessment, (iii) business permit (*izin usaha*), and (iv) land right permit. It is widely known that location permits exist in land that is not legally available for a specific use purpose and do not confer the right to develop. At the present time, the government is reviewing location permits and existence of a location permit is not considered sufficiently robust for the purposes of this methodology. At a minimum, if a location permit is considered appropriate for this methodology, then this must be in accordance with the legal status of the land. For non-forest use, this will require a minimum of legal coherence between the legally defined forest land use zoning and regional spatial plans, while for forest use, this will require congruence with the legally defined forest land use zoning. The applicability condition of (2b) and its basis is unclear.
Applicability Conditions – p.9 and 8.2.1 Option (a)	The baseline rate of conversion: (a) If the project proponent can produce documentary evidence that demonstrates a legally approved conversion rate by an identified agent of deforestation, this rate must be used in the carbon accounting for the project. The document used must have all necessary legal approvals and permits.	Reference to "a document" or "management plan or map" is not considered sufficiently specific. The legality of any such documents can only be made on the basis of (a) clear legal status of the land based on legal forest land use and regional spatial plan zoning and (b) legal status of licenses.
Applicability Conditions – p.9 and 8.2.1.1 Option (b)	The baseline rate of conversion: (b) If no such documentary evidence exists, or no specific deforestation agent can be identified, the rate of conversion by	The steps required here are to: • Define the legal status of the land based on final legalised forest land use and regional spatial plan zoning based on Law 26/2007 • Define the local use of the land and forest • Create strata of legal status and local use

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	the most likely deforestation agent can be determined based on the historical conversion rate by this most-likely deforestation agent in an area similar to the project area (—reference region). The reference region must consist of at least three areas under the same conversion stratum as the project area within the union of a 250-km buffer around the project area and the jurisdiction with decision-making authority on concession permitting.	• For production forest zones (HP/HPT), define a likely commercial logging offtake based on the current condition of the forest, legal and bio-physical constraints. • For production forest for conversion (HPK), a reference region may be applicable but it should be noted that in 2009 the Ministry of Agriculture introduced a nre regulation for oil palm on peat land that specifically prohibits the development of certain areas. Thus historical practices in a reference region before 2009 may not reflect practices following the issuance of the new regulation. • For local use strata, a historical rate of conversion based on the last five years can be defined to ensure that current rates of deforestation and degradation are included. The proposed use of satellite images from (a) 0-5 years and (b) 5-15 years before project start is considered not applicable as this will create baseline conversion rates that may include the period 1997-2005 when forest loss was extremely high, thereby inflating baseline conversion rates.
Applicability Conditions – p.9 8.2.2 Option (c)	The baseline rate of conversion: (c) If option (b) is not applicable, then a conversion rate from the literature may be used for each of the project conversion strata on the condition that it can be demonstrated that this rate (i) is conservative, (ii) is not older than 10 years, (iii) and is from the same country.	This is not considered appropriate and is recommended to be removed from the methodology as it enables the establishment of baselines that have limited relevance to the actual project area.
8.1.2	For each of the legal zoning categories present on the land, identify the most likely conversions based on (a) previous official	As discussed above, the potential legality of an application must be considered in the context of final legal forest land use and regional spatial planning zones. Within Indonesia, common (past) practice in the area 250km around the project area cannot also be considered as

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	applications of concessions in the project area, or (b) previous active concessions in the project area that are not active anymore, or (c) common practice.	this relates to a period during which the context of legal compliance and related issues is likely to differ from current and future legal context. In the examples given, it is assumed that production forest degrades and becomes production forest for conversion. While this has occurred in Indonesia, it cannot be assumed to have general application. Such an application will artificially inflate the baseline scenario.
8.1.3	Historical Reference Period	6-10 years prior to the project start date. For projects starting in 2012, this reference period would be defined as 2002-2006 during which time illegal logging was at a high level. In 2005, Indonesia initiated efforts to reduce illegal logging (Inpres 4/2004 and other actions), which have had some positive impact. The historical reference period must reflect recent deforestation rates.
8.1.3	Baselines	It is suggested that baselines should be updated every five years throughout the project lifetime.
8.4.1 Peat Subsidence	Drainage depth	1. For plantation situations, drainage depth can be established based on practice and the literature. However, for non-plantation strata, the drainage depth will be dependent upon (a) existing drainage and (b) future drainage. (a) can be defined, while (b) is unknown and unpredictable. A conservative approach for non-plantation strata would be to only include existing drainage infrastructure. Any additional drainage infrastructure constructed could then be included in the five-year revision of the baseline. 2. The impacts of drainage infrastructure on water table depth are not uniform on peat land, in particular outside of plantation settings, i.e. there is spatial dependence. Application of a uniform figure for a single stratum is potentially highly erroneous and, given the likely contribution of oxidation emissions, this spatial dependence must be accounted for.

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		3. Land clearance through burning for plantation establishment is illegal, although it still occurs in some cases. It cannot be simply assumed that a plantation will use fire and therefore that there will be subsidence from burning in year 1 for oil palm conversion. 4. The figures for oxidation emissions are (a) very high (9.6 cm/yr) and (b) do not change from year 1 to year >5. These assumed values are not supported by the scientific literature and recent studies, which find lower levels of subsidence and subsidence declining after the initial years following drainage. Furthermore, patterns of rainfall (and therefore geographical location), peat type (fibric, hemic, sapric) and land cover influence levels of drainage-mediated peat subsidence. The Couwenberg et al (2010) relationship provides general characterisation of this relationship but cannot be directly applied to specific project locations without consideration of these and other factors. 5. It is not clear why years 1, 3 and 5 contain fire emissions for the clear cutting class. Fire in such situation is much more complex than this and cannot be applied as a uniform emission factor.
8.4.2 Peat map	Sampling Plan	For a methodology of this nature, standards for estimation of peat depth must be included as well as independent verification. Peat sampling is highly dependent on field interpretation and given the importance of this for the methodology, standards and guidelines must be included as well as independent verification. The error associated with standard measures of peat sampling are typically greater than the expected annual subsidence rate, so conservative means of estimating this must be made (e.g. lower 95 percent confidence interval).
8.4.3 Baseline Peat		The model presented is a spatially explicit but static model of peat emissions. In short, each strata is divided into a grid with (a) peat depth and (b) land status (converted / not converted) recorded for

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Emissions		each cell in the grid. For each cell, subsidence from drainage and subsidence from fire is calculated for each year and summed. 1. Subsidence from drainage in plantations – As stated above, the impacts of drainage in a plantation context can be predicted at a general level. However, the scientific literature reports a range of emissions factors for this, which may be related to factors such as peat type. For such a calculation, emissions factors specific to a particular peat type and land use in the region should be used, not a general estimate from the literature. Furthermore, the static model presented does not account for rainfall variation. Rainfall along with drainage will be key determinants of water levels and therefore subsidence. These factors need to be accounted for. 2. Subsidence from drainage in non-plantation landscapes – The same applies in non-plantation landscapes except that the actual emissions factor for such a landscape will depend on the nature of the drainage infrastructure in the peat land. For plantations, this can be established based on standard plantation layout, but for non-plantation landscapes this will typically specific to the landscape in question and based on past logging history as well as local community land use and water management practices. In short, the estimation of subsidence from drainage in non-plantation landscapes required (a) existing drainage infrastructure to be mapped and (b) the spatial impact of this on the surrounding peat land to be assessed (the further from a drainage canal, the less the impact on peat water levels). Application of a uniform emission factor is not appropriate and will likely overestimate baseline emissions. The dynamic factors of rainfall and actual drainage conditions should also be included in such strata as described above. 3. Peat subsidence from burning. The calculation of peat subsidence from burning does not reflect actual field conditions and patterns of

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		fire in peat land. Fire in peat land occurs predominantly in the long dry seasons associated with El Nino when water levels in degraded and managed peat land are typically more than 1 metre below the surface level. The issue of 40cm water depth is therefore not considered relevant. The key factors determining whether a cell will burn are (a) rainfall and therefore water depth of the peat, (b) fuel in the form of biomass and material that can burn and (c) the likelihood that a fire will be lit, which is based on accessibility and other factors. The current model does not adequately reflect likely patterns of fire and there is no attempt to validate the model based on past fire history. As a result, this is not appropriate.
9.1 Legal Agreement	These legal agreements are particularly important when the project proponents do not legally own the forest land, and the land-tenure status is unclear or obscured by a complex administrative hierarchy.	If land tenure status is unclear, then so are the carbon rights. It is not clear from this narrative that a project proponent under such circumstance can therefore have clearly defined legal carbon rights. Indeed, the lack of legal certainty in Indonesia in the context of the legal status of land use zoning through forest land use, national and regional land use zoning provides a major obstacle for avoid emissions projects of the nature defined in this methodology.
10. Leakage	When the deforestation agents can be identified, it must be demonstrated that the management plans and/or land-use designations of the deforestation agents' other lands (which shall be identified by location) have not materially changed as a result of the project (e.g., the deforestation agent has not designated new lands as timber concessions)	The identification of leakage as proposed here needs to be more detailed based on two issues. First, plantation companies are typically part of larger corporate groups – will this definition of leakage therefore apply to the whole group. Second, land banking is a common practice whereby land is held in reserve by a group and new land acquired. How will the acquisition and development of land outside the project area by a group that has not developed a specific land area within the project area be identified to be a result of the project? Whether this new land developed is on peat land or not is also of relevance.

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	Leakage as a result of the displacement of forest products	This section only deals with community use of forests. The situation of market leakage for where a logging or timber plantation company, for example, does not utilise forest and land within the project area is not addressed.