



**Overview of
Non-Permanence &
Risk Buffer Reserve**
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The NFS provides the background research and information for the NFS Risk Buffer Reserve Policy for projects verified as eligible for issuance of Natural Capital Credits from the Natural Forest Standard. The Risk Buffer Reserve Policy document can be found on the NFS website.

i. Introduction

Land-based carbon projects, by their very nature, face the risk of non-permanence, and this must be addressed by the Standard to provide assurance against future reversals or losses, plus to maintain the credibility of the Standard. It is therefore a necessity to provide a compensation mechanism for any potential future reversals of carbon reductions. It is found that buffer accounts are generally effective in addressing unintentional reversals and that project duration and appropriate withholding rates affect buffer integrity, whilst a pooled buffer through project aggregation can serve to reduce the risk of buffer failure.

The NFS only issues credits ex-post, upon verification, and therefore only for proven avoided emissions for each crediting period, however there is a need to adopt a mechanism to ensure that any carbon that is subsequently lost to unintentional reversal over time can be accounted for and replaced.

The NFS has carried out extensive research into the issue of addressing permanence, and has drawn upon the best available data that addresses this issue as well as analysing other Standards approaches to risk buffers. Although there is not a great deal of research regarding permanence that is specifically aimed at REDD+ projects, given the relatively new scope of the project types in the carbon market, there has been research carried out based on A/R projects and it is reasonable to assume that similar conclusions may be surmised for other types of forest carbon project, as the risk of non-permanence does not rest on the project type. A full list of reference documents is given at the end of this document.

The NFS proposes to address this by way of a Risk Buffer Reserve account, whereby 10% of all Natural Capital Credits issued will be deducted at source and not made available to the project proponents. Rationale for this policy is discussed in depth in this document.

1. Function of the Risk Buffer Reserve

The integrity of the NFS and the issued NCCs is ensured by setting appropriate levels of reserves that must be maintained in order to cover risk and provide the balance between the needs of the project to be able to generate sufficient cash flows to address the deforestation pressures, and purchasers of the NCCs to have assurance that the conservation and project benefits are permanent.

The Risk Buffer Reserve mechanism is therefore in place to provide the assurance on the permanence of issued Natural Capital Credits and to ensure that any credits issued to areas of forest that unintentionally get deforested, can be replaced from the buffer reserve.

Unintentional risks can only be mitigated by a project developer to a limited extent; intentional risks are risks that can be influenced by a project developer (see section 3 for definitions). The NFS Risk Buffer Reserve is in place to ensure against unintentional and catastrophic reversal occurrences. Intentional reversals are taken into account when a project quantifies the potential credits for each crediting period, through the identification and quantification and deduction of any emissions that have occurred within the project and leakage area, therefore intentional reversals will not be deducted from the Risk Buffer Reserve.



Where an unintentional loss event or reversal is deemed to have occurred, an appropriate number of reserve credits will be put 'on-hold' to cover the reversal and ensure the integrity of the issued Natural Capital Credits and the Natural Forest Standard. Upon verification of this reversal the appropriate number of credits will be retired from the Risk Buffer Reserve in compensation (see section 9).

The liability of intentional reversals is assigned to the project developer and not to the NFS Risk Buffer Reserve. This corresponds with the policies of other Standards within the voluntary market. The project developer will quantify and deduct intentional reversal emissions that occur from the project within each annual report and will include quantification of emissions, in compliance with the Natural Forest Standard annual reporting requirements.

2. Program-wide Pooled Risk Buffer Reserve

Analysis of evidence suggests that buffer robustness is enhanced through risk pooling, and a system-wide buffer is found to be successful in providing a positive buffer account, and it is usual in the voluntary market for Standards to use a system-wide, pooled buffer approach. By maintaining a pooled buffer, there is a reduced risk of damages occurring simultaneously and therefore the distinct likelihood that the buffer will be able to cover any unintentional reversals in any given period. Pooling also means that individual project deductions can be relatively smaller than if the risk buffer was on a project-specific basis, as risks are spread system-wide across activities and projects.

Buffer accounts are generally effective at addressing unintentional reversals, however intentional reversals may be too high for the buffer to address. Therefore these must be offset through safeguards and liability for reversals by project developers, to ensure against intentional reversals and successfully mitigate intentional reversal risks.

The NFS Risk Buffer Reserve is to be held as a pooled account across the NFS project portfolio as a whole. Buffer credits are retained and deposited into a master NFS Risk Buffer Reserve account pooled across all project. This means that the replacement requirements of individual projects due to reversal can be covered by the buffer holding of the pooled NFS project portfolio.

The Risk buffer reserve must only be used as a last resort mechanism and all possible safeguards must be taken, within the boundaries of control, to ensure that all project benefits are permanent.

3. Non-permanence risks of Natural Forest projects

Non-permanence risks for land-based carbon projects are traditionally classified into two types:

(i) Intentional reversals

Intentional reversals are classified as reversals caused by purposeful actions of the project participants such as land clearing and intentionally-set fires. These risks can normally be influenced by project developers through means such as quality of management, and the implementation of measures to minimise social, biodiversity and financial risks. Intentional reversals are deducted from annual quantification calculations prior to credit issuance and will not be replaced from the Risk Buffer Reserve.

(ii) Unintentional reversals

Unintentional reversals are reversals that occur outside the projects control and that may occur in the future, due to natural disturbances or political circumstances beyond a project developers control such as wildfires,



wind and flooding, pests and diseases and unexpected political changes. Unintentional risks can only be mitigated by a project developer to a limited extent as they are deemed to be dependent on the physical location of the project.

Analysis of unintentional reversals from wind and fire, carried out by Murray *et al*, 2012, finds that 20 year projects tend to achieve appropriate buffer levels using a 10% withholding rate, yielding a positive buffer balance at the conclusion of the project. This analysis was carried out on 20,000 ha projects, which is deemed relevant to the NFS, as a comparable scale of project.

In the event of a catastrophic reversal occurring, the project baseline will need to be re-established prior to further issuance.

4. Natural Forest Standard Risk Mitigation Safeguards

It is well documented and recognised that social and carbon objectives are strongly linked; the success of most land-based carbon projects depends on the participation of local and indigenous communities and ensuring their incentive to maintain their habitat. Effectively addressing the social and community aspects of a project can help achieve carbon permanence and reduce project risk. Through the provision of social benefits resulting from participation and effectively applying socially-inclusive aspects thereby effectively achieve carbon permanence and reduce project risk. Adaptive project management also further contributes to project sustainability and carbon permanence.

Unlike other Standards, the NFS comprises an inbuilt combination of social, biodiversity and carbon benefits to be included in the project design and must be proven in order to achieve validation and verification. Therefore, the NFS provides these inherent safeguards as minimisation of intentional risks to projects, as these safeguards can be seen to be risk mitigation measures themselves, and not purely focused on the carbon values of a project. With obligatory strong safeguards in place, intentional risks can be mitigated, while a lower risk buffer percentage may be withheld to cover unintentional project risks.

Communities in the project areas play a vital role in controlling leakage and ensuring permanence. Their experience and knowledge of forests, their communication network and the added incentive to maintain healthy forest makes them valuable stakeholders and hands-on project participants. Indeed to exclude local communities as stakeholders would make leakage difficult to control and permanence an unlikely prospect. The success of most land-based carbon projects depends on getting the social and community aspects of the project right. Therefore, effectively addressing the social aspects helps achieve carbon permanence and reduce project risk (as recognised by the VCS¹).

Through the compulsory requirement of social engagement and socio-economic enhancement from participation in the project, the NFS explicitly requires the project to demonstrate sufficient and adequate community engagement as part of the project design and implementation, in addition to providing an effective Benefit Distribution Mechanism for project participants. In addition, biodiversity maintenance, project management and legal status safeguards are also mandatory requirements of the Standard and projects are

¹ In the VCS Non-Permanence procedural document v3.2, it explains that certification against the Climate, Community & Biodiversity or Social Carbon Standards may be used to demonstrate a mitigation credit, and can result in a lower percentage of credits being held back as a risk buffer.



required to provide evidence that these risks are mitigated to a reasonable level, in order to successfully achieve validation and verification, and ultimately NCC issuance.

These safeguards act as minimisation measures of intentional risks to projects and can be seen to be risk mitigation measures themselves, and not being purely focused on the carbon values of a project. As a result of these obligatory measures being in place, intentional risks can be mitigated through their effective implementation, and can act as a non-permanence mitigation measure, therefore resulting in a lower risk buffer percentage being withheld by the NFS, to cover unintentional project risks.

Every NFS project undergoes a rigorous validation and verification certification process of its compliance to the Standard requirements and GHG assertions and there are a number of safeguards that are in place to ensure conservative quantification of carbon benefits.

The AM001 methodology is designed to apply risk indices across the project area, which categorises the risk across the entire project area and potential credits are calculated according to the risk category each part of the project falls into. The risk categories are conservatively estimated, and at no point does the project claim 100% of the carbon in any identified project area; in areas that are deemed very low risk, no credits are claimed at all, with the highest risk index being 0.8.

The level of conservativeness that is applied in the quantification of credit calculations can allow for a lower risk buffer deduction, as the project is not claiming all the carbon that is present in any project area. Throughout the quantification process, there are a number of conservative adjustments factored into the methodology, so as to ensure that all assumptions are conservatively reflected and the carbon benefits are conservatively estimated and no over-estimation of carbon benefits are². The methodology calculations also allow for the deduction of any emissions that have occurred within the project and leakage area during the crediting period. In addition, the NFS only issues ex-post credits to verified projects and therefore only for proven avoided emissions for each crediting period.

The carbon stock of a project is continuously monitored throughout the lifetime of the project, in accordance with the NFS requirements and quantification methodology. If over time, the emissions for a project start rising, this could be an indication of increasing risk and will be reviewed accordingly (see section 8).

5. Length of Permanence

Permanence is defined according to other Standards, in various ways and indeed some do not define permanence explicitly at all. The actual definition of permanence is vague, even in the context of the ISO 14064-2, which describes permanence as:

“...a criterion to assess whether GHG removals and emission capture and storage are long-term, considering the longevity of a GHG reservoir or carbon pool and the stability of its stocks, given the management and disturbance environment in which it occurs.”

² See ‘A Risk Based Methodology for Quantifying Natural Capital Credits Issued to Projects Operating under the Natural Forest Standard’ for further details. Available at: <http://www.naturalforeststandard.com/nfs-standard/methodology/>



In addition to this, the UNFCCC considers the political dimension of permanence not to be beyond 2050, for which their emission reduction targets are set, with the Gold Standard recently setting a length for permanence between 30- 50 years for their Land Use and Forest projects.

It is important for the integrity of the Standard and the issued NCC's that the permanence timeframe is set appropriately and should have a long-term climate mitigation effect, however there is evidence to suggest that a permanence time period that is set too high can result in higher risk buffers, and may discourage project developers to participate in carbon projects. Therefore the NFS has taken a reasonable, considered and practical approach to defining permanence in the context of NFS projects and as a result, permanence is identified as a maximum of 50 years, which is in line with the recent target set by the Gold Standard.

This is applicable within the NFS framework as the NFS requires a project to have a minimum duration of 20 years. To ensure permanence, the NFS recommends that all NFS projects commit to project duration plus 20 years (to a maximum of 50 years) for assuring permanence; this can be deemed as reasonable in terms of the length of permanence, and as a minimum assures permanence for 40 years, which as at time of writing this recommendation document (September 2013) would fall around the 2050 UNFCCC target year.

As an example, an NFS project with the project duration of 20 years would need to ensure an adequate buffer reserve is held to ensure permanence for a total of 40 years, and an NFS project with the duration of 30 years would need to ensure permanence for 50 years.

6. Project Incentive to Reduce and/or Minimise Risk

With the project developer assuming risk for intentional reversals, this serves as a strong incentive for the project developer to take pre-emptive action to reduce risk and/or keep risk to a minimum.

With regards the 10% Risk Buffer Reserve account deduction, the incentive to perform is still high, as this figure will be subject to a performance-based review (see section 8).

The NFS requires projects to continuously monitor and maintain the project area, and provide annual reports including quantification each crediting period as to the changes in the year, thereby providing incentive to keep reversals to a minimum so as to maximise the credit potential of the project area year on year.

As the Natural Capital Credit issuance is ex-post and based on observed and actual net changes in carbon stocks, the annual quantification and calculation of NCCs will capture both the positive accumulation and negative reversal of carbon over the crediting period. Since the latter reduces the number of NCCs generated, it is implicitly a liability imposed on the project developer as the owner of the rights to the stream of credits generated, and therefore the incentive to the project developer keep the intentional reversals to a minimum is present in this implication.

As is consistent with the NFS AM001 methodology Annex 3, any emissions from deforestation occurring in the project or leakage area will be counted as project-intentional emissions unless the project can demonstrate they are shown to be caused by external or unintentional risk threats, and not project-intentional reversals.

As unintentional reversals are only able to be mitigated by the project developer to a limited extent, the incentive is present to keep any controllable threats to a minimum so as to ensure overall reversals are as



minimal as possible and therefore upon review, the risk buffer reserve deduction will have no cause for increase over time.

As an incentive for projects, a performance-based review will be carried out upon each 5-year verification event and where buffer deductions for the project are deemed to be exceeding requirements, due to low or nil reversals/emissions occurring, the project may be rewarded for this through partial release of already deposited buffer credits, serving as an incentive for projects to perform well over time as this will be entirely based on project performance (see section 9).

7. Level of Risk Buffer Reserve Credits

As the Standard includes the mandatory elements of socio-economic and biodiversity benefits, these can be deemed as strong safeguards towards risk mitigation measures, as for the project to be successfully verified, evidence has to be presented and verified as to all three aspects of the Standard and not just the carbon benefits, and this can go towards supporting the need for a lower risk buffer percentage than a project that is just focused on carbon benefits (see section 4).

It is important for the Natural Forest Standard to ensure that the Risk Buffer is both reasonable in its approach to assure the permanence of issued Natural Capital Credits, but also does not result in possible non-viability for a project due to the risk buffer deduction being set too high, as the Standard is designed to mobilise resources to enable projects to succeed. Simply setting a high set-aside rate is likely to be counter-productive, as it raises the effective cost of generating a credit and could discourage program participation, however it is fundamental for the integrity of the Standard and the Natural Capital Credits that an appropriate and sufficient amount of credits are held in the Risk Buffer Reserve. The key is to set withholding rates at appropriate levels and ensure that buffers are deducted on a consistent basis across the portfolio of NFS projects.

Risk assessment can be carried out in a subjective manner and do not necessarily provide an independent outcome of the risks a project will face. Participant-based risk assessment can result in projects that have varying associated risks ending up with opposing risk outcomes due to the subjective nature of the information used.

The risk buffer should be and can be based on verified evidence i.e. ex-post in year 1 – subsequent risk buffer deposit can be increased if risk is deemed to be increasing, but the entry-level at Year 1 after verification is 10%. A project should not be penalised for being an ‘early-stage’ project, as the intention of the Standard is to provide a pooled buffer reserve, which will build over time, and as such the 10% deduction of credits is considered reasonable. Therefore, an initial deduction of 10% is deemed reasonable to apply to projects during years 1-5.

The 10% deduction shall be based on full verification of a project with no qualifications or limiting conditions set by the verifier. If there are any qualifications or limiting conditions set out in the verification report that may result in an increased risk of reversal, either intentional or unintentional, then the risk buffer setting may be increased.

The Risk Buffer Reserve deduction will be reviewed periodically, based on the year-on-year performance of the Risk Buffer Reserve as well as the quantified emissions that occur per project during each crediting period. If performance results show significant reversals, this percentage may increase, however the Risk Buffer Reserve deduction will not fall below the fixed 10% within the first 5 year period from initial verification.



Where there is an increase in emissions reported for a project, this could indicate an increase in risk, and there may be a requirement for the project to have their deduction increased. Alternatively, where there are little or no emissions, the Risk Buffer Reserve deduction may be decreased (see section 8).

For reference the VCS, as at 26th September 2013, has 48 verified Agriculture, Land-use and Forestry projects, with a buffer total of 2,864,024 and a current amount of 76,121 (less than 3%) on hold, which is due to an unintentional fire in one project.

8. Review Procedures

(i) Risk Buffer Review

Periodic review of the risk buffer will show either that the system is over-performing or underperforming and can be adjusted accordingly over time, based on the performance of the buffer reserve and the performance of each individual project (see below). This will not be reviewed before the initial 5 year period, and the buffer balance will be on a roll-over basis. This means the buffer balance is rolled over from one 5 year period to the next and the buffer withholding requirement is adjusted accordingly at the end of each 5 year period. An over-(under-) performing system one period will reduce (increase) buffer requirements for the next period. This will effectively assure the appropriate number of credits are retained in the Risk Buffer Reserve and also allows for the release of excess credits back to the project developers for sale on the market, once performance is proven (see section 11).

Over time, the risk buffer deduction due from each project may be reviewed and revised according to performance-based results and according to the relevance of the total amount pooled in the reserve account across all NFS projects. This will only be applicable through performance of the project and only initially possible once the initial 5-year period is complete.

(ii) Project Review

All projects verified and active under the Natural Forest Standard are required to submit annual reports which include the progress across the range of project activities and objectives as well as the quantification of carbon benefits and emissions from the given reporting year.

Through performance-based review, if evidence is found to suggest that the project management is found to be failing or emissions are found to be significantly increasing from subsequent annual reporting and crediting periods, the level of Risk Buffer Reserve credits to be deducted from the issuance may increase (also see section 7). Emissions that occur within the project area for each crediting period should be assessed year-on-year and treated as an indicator of increasing risk, which should be taken into account at each interim Risk Buffer Reserve deduction, and fully assessed at each 5-year verification event.

On the antithesis, if the project is over-performing and no or very little requirement has befallen the Risk Buffer Reserve, after the initial 5 year period, the project may be rewarded for this positive performance through partial release of previously deducted credits, or the percentage of buffer deduction may be decreased, upon negotiation and based upon verified results..

Review of each projects risk buffer deduction will occur upon the 5 yearly verification events; however appropriate Risk Buffer deductions will be substantiated in the interim upon the submission of annual reports for ex-post annual credit issuance, for assurance that the appropriate level of credits is being maintained within the Risk Buffer Reserve on an annual basis.



9. Cancellation and Holding of Risk Buffer Credits in the Event of a Reversal

Buffer credits shall be cancelled from the pooled buffer where there are negative net GHG emission reductions or removals associated with the project.

When an event occurs that is likely to qualify as an unintentional reversal, the loss event must be reported and calculated during the annual reporting quantification of emissions for the project. The NFS Registry administrator shall put buffer credits from the Risk Buffer Reserve account on hold, in an amount equivalent to the estimated loss reported as a reversal.

Where the net GHG benefit of the project for the crediting period is negative, a reversal has occurred and the registry administrator shall cancel buffer credits equivalent to the reversal.

If a catastrophic reversal occurs and there are not sufficient credits set aside in the risk buffer reserve, the project developer for which the reversal occurred must replace the deficit from their previous or subsequent credit issuance.

10. NFS Risk Buffer Issuance Suspension Rights

The NFS reserves the right to suspend the issuance of credits to projects if there is evidence to suggest serious breakdown in the management of the project or intentional emissions from the project area increase considerably, until issues are rectified.

11. Release of Buffer Credits

Where there have been very low or nil reversals in a project, a proportion of buffer credits associated with a project may be released over time. This will act as an incentive for continued verification and project performance, and will also recognise that certain project risks decrease as the projects longevity is demonstrated.

The first release of buffer credits will occur no sooner than 5 years after the initial verification event, and will require a subsequent verification event prior to any buffer credit release. Buffer credits shall not be release more often than once every 5 years, in line with each verification event.

12. NFS Risk Buffer Reserve Recommendation

Given the discussion, evidence and research set out herewith, the Natural Forest Standard recommends a fixed 10% buffer approach for projects in years 1-5, in accordance with the specified conditions. Length of permanence is defined as a minimum 40 years to a maximum of 50 years. Liability for unintentional reversal is with the Risk Buffer Reserve; liability for intentional reversals falls to the project developer. Performance-based review at both the Risk Buffer Reserve and individual project level will be undertaken periodically and appropriate adjustments will be made accordingly, as it is crucial to maintain a sufficiently appropriate buffer reserve that protects both the integrity of the issued Natural Capital Credits, and the Natural Forest Standard over time.



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