CR-I TOOL FOR DETERMINATION OF GHG REVERSAL RISK AND BUFFER CONTRIBUTION

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CARBON REGISTRY-INDIA

NETWORK FOR CERTIFICATION AND CONSERVATION OF FORESTS

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ABBREVIATIONS

Complete list of abbreviations to be provided with the final version of document. For quick reference, kindly use the following abbreviations

AFOLU: Agriculture, Forestry and Other Land Use

CS: Carbon Standard

CR-I: Carbon Registry-India

DPR: Detailed Project Report

EP: External Project

GC: Governing Council

GHG: Greenhouse Gases

GTPS: Grand Total Possible Score

GTRS: Grand Total Risk Score

IPP: Independent Project Proponent

MAP: Methodology Approval Procedure

MR: Monitoring Report

NCCF: Network for Certification and Conservation of Forests

RCS: Risk Category Score

RCR: Risk Category Ranking

RIP: Registration and Issuance Procedure

SCR: Stakeholder Consultation Report

TPS: Total Possible Score

VVB: Validation and Verification Body

VVS: Validation and Verification Standard

1. Introduction

A critical requirement of the Carbon Registry-India (CR-I) (hereafter referred to as the Registry) is that the net GHG removal enhancement generated by a project activity be permanent in nature. Permanence (as it is termed) of net GHG removal enhancement is an essential aspect of environmental integrity and carbon mitigation projects. The issue of permanence is particularly relevant to AFOLU projects. As far as AFOLU projects are concerned, *Permanence refers to the longevity of the net GHG removal enhancement and the long-term stability of the aggregate carbon stock*. The net GHG removals corresponding to AFOLU project activities might not be permanent and may result in release of GHG back into the atmosphere (GHG reversal) upon materialization of potential risk(s) (like extreme weather events, fires, insect infestation, political instability, etc.). Based on their source, the GHG reversals can be classified into two distinct classes, *i.e.*, anthropogenic (or man-made) and natural, also known as intentional and unintentional GHG reversals respectively. Thus, it is essential for IPP(s) to determine the risk of non-permanence, both from anthropogenic and natural causes and adopt an appropriate approach to abate GHG reversals.

IPPs intending to register AFOLU projects on GHG removal enhancement shall perform an evaluation of the aggregate risk (based on accumulation of all types of identified risks, relevant to the proposed project activity) of non-permanence for the proposed AFOLU project activities by using this tool, *i.e.,* the CR-I Tool for Determination of GHG Reversal Risks and Buffer Pool Contribution (hereinafter referred to as the tool). Based on the tool, the IPP(s) shall quantify the risk percentage of the proposed project activity, termed as the Minimum Buffer Percentage (MBP), which shall be the amount of carbon units (MCUs) that must be deposited in the CR-I Buffer Pool Account to offset the risk of GHG reversals. NCCF shall be responsible for managing and executing the operational control over the CR-I Buffer Pool.

This tool shall be used in its entirety for projects belonging to sectoral scopes other than AFOLU, if considered necessary by the VVB and/or the NCCF GC.

2. Scope and Applicability

2.1 General Scope

2.1.1 The tool provides rules, requirements and procedures to the IPP to calculate the risk associated with the GHG reversals and to subsequently determine the percentage of MCU contribution to the common buffer pool account.

2.1.2 The tool provides rules, requirements and procedures to the VVB to evaluate the GHG reversal risks and MBP calculated by the IPP.

2.1.3 Rules, requirements and procedures established in this tool are additional to the rules and requirements established in Carbon Standard and Validation and Verification Standard.

2.2 Sectoral Scope

2.2.1 The tool is applicable to AFOLU projects, *i.e.*, projects leading to net GHG removal enhancement under the sectoral scopes 14 (Afforestation and Reforestation) and 15 (Agriculture) as adopted by Clean Development Mechanism (CDM) of UNFCCC.

2.2.2 The tool shall be used in its entirety for any other projects if deemed necessary by VVB and/or NCCF GC.

2.3 Greenhouse Gases

2.3.1 The tool shall encompass six types of Greenhouse Gases (GHGs) namely, Carbon Dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur Hexa-Fluoride (SF_6) as mentioned in Subsection 4.3 of Carbon Standard.

2.4 Project Scale

2.4.1 The tool shall be applicable to projects of all the scales as defined in Section 9.5 of Carbon Standard.

2.5 Geographical Scope and Delineation

2.5.1 The tool is applicable to projects proposed and registered located within the Indian territory, or anywhere across.

2.5.2 Projects comprising patches of land, risk shall be assessed separately for each of the patches and then averaged to determine the overall GHG reversal risk.

2.6 Applicability

2.6.1 The tool is applicable for usage in the following stages:

i) Assessment of GHG reversal risk and buffer pool contribution by the IPP during the design of the proposed project.
ii) Assessment of GHG reversal risk and buffer pool contribution by the IPP during each monitoring period of the registered project.
iii) Validation of Assessment of GHG reversal risk and buffer pool contribution by the VVB during Validation of the proposed project.

iv) Verification of Assessment of GHG reversal risk and buffer pool contribution by the VVB during each Verification of the registered project.

v) Verification of actual GHG reversals.

3. Risk Assessment

3.1 General

3.1.1 IPP shall identify non-permanence risk associated with the project based on the categories for the entire crediting period and shall be based on information available for past, present and future scenarios and, supported by reports, scholarly articles, or any other reputable source of information. IPP shall provide justification of the assessment of risk besides the description of actions taken to mitigate the identified risks.

3.1.2 In cases where a project comprises activities from different sectoral scopes, the risk and quantum of buffer shall be identified and determined only for the activities pertaining to sectoral scopes 14 and 15.

3.1.3 The risk percentage and subsequently MBP shall be determined based on the risk probability and impact of risk on the project and the mitigation measure proposed and/or taken by IPP, if any.

3.1.4 The risk shall be identified and evaluated based on the categories indicated in Table 1 (reference Subsection 3.2). If required, IPP shall propose new risk type(s) relevant to the project and classified appropriately under risk category(ies).

3.2 Risk Identification and Categorization

3.2.1 IPP shall identify risk type as mentioned in each of the 5 Risk Categories in Table 1. Table 1 provides risk categories further broken into probable risk types along with suitable mitigation measures.

3.2.2 IPP shall justify the risk identified and the mitigation measures selected to offset the risks using appropriate evidences, citations and other reputable sources of information. IPP shall also describe the mitigation measures adopted and their impact on identified risk types.

Table 1: Risk Categories and Risk Types

S. N.	Risk Category	Risk Type	Suitable Mitigation Measure
1.	**Financial Risk**: The financial risk refers to the risk associated with financial needs of project implementation and monitoring, which can arise due to various predicaments. Therefore, the project may not be able to generate requisite GHG removals and the IPP is unable to continue monitoring and reporting. The IPP is required to provide documents related to the financial plan for the project.	Lack of funds, funding options or timely availability of funds	• Provide proof of sufficient funding for implementation of the proposed project • Hedge investment, if required, by securing funding from external sources • Ensure future contracts for sale of generated or to be generated MCUs • Ensure alternate revenue generation streams
		Bankruptcy risks to IPP(s)	
		Inability to secure buyers for MCUs	
		Low Price of MCUs	
		Loan taken for implementation of project	
2.	**Management Risk**: The management risk refers to uncertainty in project execution, inadequate management or reporting due to lack of technical expertise, competence and experience in project management of the IPP(s).	Lack of internal expertise	• External outsourcing of consultants/experts • Training of in-house team • Hiring of new personnel • Developing and following project execution plan • In-house QA/QC team
		Insufficient number of expert and experienced team members	
		Lack of proper tools and QA/QC measures	
		Inadequate availability of quality planting material	
3.	**Social Risk:** The social risk refers to the aspects of communities in the vicinity of the project that might lead to jeopardising of the project implementation and ultimately failure of net GHG emission reductions.	Right of land	• Resource management, creating alternative sourcing of resources • Extensive Local stakeholder consultations • Capacity building exercises
		Insufficient support of local and tribal communities associated with the area	
		Change in land usage pattern	

			• Demonstration of net positive impacts on community and resources on which community is dependent
		Improper harvesting, overgrazing, overdependence on resources, encroachment, etc	
4.	**Political Risk:** The political risk refers to the change in political landscape which might impact the project and GHG removals and emission reductions. There could be some risk under the category, which might be out of control of IPP(s) with no mitigation measures	Change in land type	• Ensure legally binding rights to land • Support of government as an IPP or Stakeholder.
		Policy changes (external)- Change in resource allocation or management. Examples: mining, deforestation notification, development of roads/highways on the project land, etc.	
		Act of war	
5.	**Natural Risk:** The risk associated with the natural events or natural forces on which there is no control of humans, would be considered as natural risk. This might lead to destruction of biomass and elimination of GHG removals. Extent of Natural Risk impact on the project shall be described and evaluated separately as well.	Drought	Implement project specific risk measure and/or intervention
		Flood	
		Infestation of pests, diseases and/or invasive species	
		Natural forest fires	
		Extreme weather events such as hurricanes, heat stress, etc	

3.3 Risk Analysis

Risk Scoring

3.3.1 For each risk type, IPP(s) shall give scoring for risk probability and risk impact based on the Risk Scoring Scale, with 5 being the highest possible score and 1 being the lowest possible score. Where, risk probability is the chance of occurrence of the identified risk type and risk impact being scale and intensity of impact on GHG removals due to identified risk. IPP shall provide justification for each score given, using appropriate citation such as reports, scholarly articles and other reputed sources of information. Risk scores should represent the maximum risk associated with the risk categories and types.

3.3.2 Risk Score of a risk type shall be calculated by multiplication of scores given to Risk Probability and Risk Impact, thus maximum possible score shall be 25 for a risk type. IPP shall provide risk scoring before and after risk mitigation measures that are being proposed (if any) for risk types.

3.3.3 Further IPP shall calculate the Risk Category Score (RCS) by adding all the scores of the risk types within the risk category.

RISK PROBABILITY						
	5 (HIGH)	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1 (LOW)	1	2	3	4	5
	Score	**1 (LOW)**	**2**	**3**	**4**	**5 (HIGH)**
	RISK IMPACT →					

	Low risk
	Medium risk
	High risk

Figure 1: Risk Scoring Scale

Risk Ranking

3.3.4 After, all the relevant risk types have been scored, the IPP shall provide a cumulative score of the risk category by adding the risk scores of all the applicable risk types. This score shall be known as Risk Category Score (RCS). Total Possible Score (TPS) for a category shall be 25 X number of risk types. For Example, TPS for a category with 3 risk types shall be 25 X 3, *i.e.,* 75.

3.3.5 Risk Category Ranking (RCR) is determined by calculating the percentage of Risk Category Score (RCS) *w.r.t.* to Total Possible Score (TPS) *i.e.* $\frac{RCS}{TPS} \times 100$

3.3.6 The RCRs are classified as follows in Table 2 based on the percentage of Risk Category Score (RCS) to Total Possible Score (TPS)

Table 2: Risk Category Ranking

S.N.	Risk Category Ranking	Percentage Risk Category Score Range
1.	Low Risk	<= 12%
2.	Medium Risk	>12%, <=40%
3.	High Risk	>40%

Note: the percentage shall not be rounded off.

3.3.7 The proposed project shall be deemed ineligible for registration with CR-I if RCR of one or more Risk Category is ascertained as High Risk.

4. Determination of Contribution to Buffer Pool

4.1 Introduction

4.1.1 The buffer calculations would determine the percentage of credits for the common buffer pool account known as CR-I Buffer Pool. CR-I buffer pool

shall hold MCUs contributed by IPP(s) in lieu of risk(s) associated with GHG reversals in case of Carbon Sequestration Projects.

4.1.2 NCCF GC shall hold authority over control, function, operation and maintenance of CR-I buffer pool. MCUs contributed shall be deemed non-transferable and non-tradable under any circumstance and IPP shall also not make any pre-purchase agreement for buffer MCUs.

4.1.3 The buffer MCUs shall be utilised to compensate the reversals of GHG removals due to risk associated with the project.

4.2 Calculating Buffer Contribution

4.2.1 Contribution to CR-I buffer pool depends upon the Grand Total Risk Ranking which itself depends upon the percentage of Grand Total Risk Score Percentage calculated using the following formula:

$$\textbf{Grand Total Risk Score (GTRS) Percentage} = \frac{GTRS}{GTPS} \textbf{ x 100}$$

Where GTRS and GTPS are respectively Grand Total Risk Score, and Grand Total Possible Score.

4.2.2 Grand Total Risk Score shall be the sum of Risk Category Scores. Therefore, GTRS = RCS1 + RCS2 + RCS3 + RCS4 + RCS5 as also mentioned in Annexure 1.

4.2.3 Grand Total Possible Score is sum of Total Possible Score of each category. It also represents the maximum risk score possible for the project seeking registration and issuance of MCUs with the registry.

4.2.4 Grand Total Risk Ranking corresponds to the ranking of risks associated with the project, *i.e.*, GHG Reversal risk for the project is Low (L), Medium (M) or High (H).

4.2.5 Table 3 represents the Grand Total Risk Ranking corresponding to percentage of Grand Total Risk Score and corresponding Minimum Buffer Percentage of MCUs which needs to be deposited in the CR-I Buffer Pool as a risk mitigation measure.

4.2.6 If Grand Total Risk Ranking is High (H), *i.e.*, the Minimum Buffer Percentage is more than 40% project shall be ineligible for registration with the registry.

Table 3: Ranking for Grand Total Risk Score and Minimum Buffer Percentage

Grand Total Risk Score Percentage	Grand Total Risk Ranking (L/M/H)	Minimum Buffer Percentage
$\frac{GTRS}{TPS}$ x 100 is <= 12%	L	12%
$\frac{GTRS}{TPS}$ x 100 is >12% & =<15%	M	15%
$\frac{GTRS}{TPS}$ x 100 is > 15% & =<20%	M	20%
$\frac{GTRS}{TPS}$ x 100 is >20% & =<25%	M	25%
$\frac{GTRS}{TPS}$ x 100 is >25% & =<30%	M	30%
$\frac{GTRS}{TPS}$ x 100 is >30% & =<35%	M	35%
$\frac{GTRS}{TPS}$ x 100 is >35% & =<40%	M	40%
$\frac{GTRS}{TPS}$ x 100 is >40%	H	Project ineligible for Registration

4.3 Contribution to CR-I Buffer Pool

4.3.1 IPP shall contribute MCUs corresponding to at least determine MBP. However, IPP may choose to contribute more at any issuance stage of the project.

4.3.2 IPP shall mention the choice of contribution of MCUs in any of the following or a combination thereof, with absolute value of MCUs defined in tCO_2e units as per the reported reversals:

i) Buffer MCUs are contributed from generated MCUs from the project
ii) Buffer MCUs are contributed from MCUs from other projects; MCUs can be of any sectoral scope and vintage.

4.3.3 IPP may also choose to get the project insured and in an event of GHG reversals, MCUs could be bought from the compensation received from the insurance. In such a scenario, only MCUs exceeding the already contributed units to CR-I buffer shall be allowed.

4.3.4 In case of intentional/anthropogenic reversals, complete amount of GHG reversals can be compensated from MCUs bought from settlement received in lieu of the insurance.

4.3.5 Insurance shall not replace the CR-I buffer pool, instead only act as complementary risk mitigation measure.

5. Monitoring and Reporting of Reversals

5.1 Monitoring

5.1.1 IPP shall describe the approach and strategy to monitor risk associated with the GHG reversals in the appropriate section of Monitoring Approach in the DPR using the DPR template available on the registry website.

5.1.2 IPP shall describe the approach and strategy to monitor the GHG reversals in the appropriate section of the DPR and Monitoring Report using the DPR template and Monitoring Report template respectively, available on the registry website.

5.1.3 In case where monitoring approach and strategy requires sampling, IPP shall use and adhere to rules and requirements prescribed in the "Standard: Sampling and Surveys for CDM Project Activities and Programmes of Activities" and methodology or set of methodologies applied, as appropriate.

5.2 Reporting

5.2.1 IPP shall notify NCCF of GHG reversals within 15 days of becoming aware/informed of GHG reversals through an email[1] along with a brief about the following:

i) Event(s) both natural and/or anthropogenic that have led to GHG reversal
ii) Actions taken (if any) to reduce the amount of GHG reversals (*e.g.*, actions in case of forest fires, disease and pest infestation, over-grazing, etc)
iii) Estimated amount of GHG reversals

5.2.2 IPP shall submit a report on GHG reversal through the CR-I portal using the reporting of GHG Reversal form within 45 days of notification to NCCF or report reversals in the Monitoring Report becoming due as per the defined monitoring period, whichever is earlier. The GHG reversal reported shall be independently verified by accredited VVB on the expenses of the IPP.

[1] The email address to report the GHG Reversal by the IPP shall be provided with the final version of the document.

5.2.3 IPP shall use the GHG Reversal template available *on* the registry website to report the reversals of GHG removal enhancement and shall adhere to the procedure for the purpose as provided in the GHG Reversal template.

5.2.4 IPP shall mention amount of GHG reversal in the GHG Reversal report. For a project that comprises multiple patches of land, and GHG Reversal occurs in more than one patch of land, IPP shall mention GHG Reversal distinctly for each patch of land and project as a whole.

5.2.5 In case where sampling is required to calculate the amount of GHG reversal, IPP shall use and adhere to rules and requirements prescribed in the "Standard: Sampling and Surveys for CDM Project Activities and Programmes of Activities" and methodology or set of methodologies applied, as appropriate.

5.2.6 In a monitoring period, where GHG reversal (in tCO_2e) is 5% more than that estimated, the IPP(s) shall provide justification for the increased GHG reversals for that monitoring period.

6. Compensation of GHG Reversals

6.1 CR-I shall compensate the loss of GHG removals through the MCUs being deposited by the IPPs in the CR-I Buffer Pool account.

6.2 CR-I shall compensate up to 5% more MCUs than the MCUs deposited in lieu of buffer for risks associated with GHG reversals.

6.3 In a scenario where GHG reversals are more than 5% of the estimated quantity following a proper risk analysis, IPP shall deposit the MCUs in excess of the 5% limit, in the buffer pool within 45 days of approval of compensation of GHG reversals. MCUs deposited may be of any sectoral scope and vintage.

6.4 If the IPP fails to deposit the MCUs in excess of the 5% limit for the GHG reversals in the stipulated time, its account with the registry may be suspended or terminated, as decided on case to case basis.

6.5 In a Scenario where no cases of GHG Reversals occur, CR-I shall hold the buffers in the buffer pool account for 10 years from the last date of the end of the latest crediting period of the registered project following which CR-I shall cancel the MCUs equal to the Minimum Buffer Percentage deposited by the IPP. If the IPP has contributed more MCUs into the Buffer Pool than the Minimum Buffer Percentage required for the project during one or more stages of issuance, CR-I shall credit the excess MCUs to the IPP's account.

7. Validation and Verification

7.1 General

7.1.1 VVB shall adhere to rules, requirements and guidelines established in the reversal tool for validation and verification activities associated with the application of the tool.

7.1.2 Rules, requirements and guidelines of validation and verification established in the tool are additional to rules and requirements established in the Carbon Standard and the Validation and Verification Standard.

7.1.3 VVB shall use Standard Auditing Techniques at its disposal as described in Section 11 of Validation and Verification Standard for impartial evaluation.

7.1.4 Whenever deemed necessary, VVB may engage with subject matter expert(s) for independent and impartial evaluation of application of the tool at relevant stages.

7.2 In case where sampling is required to be used to calculate the amount of GHG reversal, VVB shall use and adhere to rules and requirements prescribed in "Standard: Sampling and surveys for CDM project activities and programmes of activities".

7.3 Validation

7.3.1 VVB shall evaluate the risk probability and risk impact calculated by the IPP for the proposed crediting type and period based on the rules, requirement and guidelines established in Section 3 of the tool.

7.3.2 VVB shall validate the monitoring approach and strategy for monitoring of risk and GHG reversals in accordance with the rules, requirements and guidelines established in the registry and methodology or set of methodologies being used in the project.

7.3.3 In a scenario wherein Permanent Design Changes (PDC) are being proposed, VVB shall, as appropriate, evaluate the GHG reversal risk ensuing as a result of the proposed PDCs.

7.4 Verification

7.4.1 Risk analysis and buffer contribution shall be evaluated by an accredited VVB at each verification based on the rules, requirements and guidelines established in the tool and the registry and in the methodology or set of methodologies being used in the project.

7.4.2 In case of GHG reversals, VVB shall evaluate occurrence and extent of GHG reversals within 120 days of submission of GHG reversal report by the IPP, or along verification of monitoring of project, whichever is earlier and also as per the rules, requirements and guidelines established in the tool and the registry and methodology or set of methodologies being used in the project.

7.4.3 Reporting of GHG reversals shall be verified along with the monitoring report and other relevant documents by the VVB during the verification in that monitoring period.

Annexure 1: Calculation of GTRS

S. No.	Risk Category	Risk Type	Risk Probability Score (A) {before Mitigation Measures}	Risk Impact (B) {Before Mitigation Measures}	Total Risk Type Score (A*B)	Mitigation Measures, if any	Risk Probability Score – After Mitigation Measure (Ai)	Risk Impact Score – After Mitigation Measure (Bi)	Total Risk Type Score – After Mitigation Measure (Ai*Bi)	Risk Category Score (sum of all risk types) {RCS}	Risk Category Ranking (Low, Medium or High)
1.	Financial Risk	Type 1									
		Type 2									
		Type 3									
2.	Management Risk	Type 1									
		Type 2									
3.	Social Risk	Type 1									
		Type 2									
4.	Political Risk	Type 1									
		Type 2									
5.	Natural Risk	Type 1									
		Type 2									
		Type 3									
GRAND TOTAL RISK SCORE (GTRS) = RCS 1 + RCS2 + RCS3 + RCS4 + RCS5											
GRAND TOTAL RISK RANKING											

Document History

Version	Date	Description
Draft 0.0	30.09.2019	CR-I Tool for Risk Analysis and Buffer Determination provides rules, requirements and guidelines to identify and analyze risk of GHG Reversal in Carbon Sequestration Projects and determine percentage of MCUs for deposition in the Buffer Pool.
Draft 0.1	14..01.2020	Changes made post comprehensive internal reviews and feedback from Dr Jagdish Kishwan, Chairman and Chief Coordinator, Carbon Registry-India