

## **PART 1: THEMATIC COMMENTS**

- I. Need for an outcome-based model: It is unclear what the objective of the 'tree planting' component of the GCP is and therefore what the variable on which the 'credit' is based should be. For instance, if the objective is biodiversity conservation/restoration, the variable should be the extent of native biota preserved/restored. If, however, the objective is carbon sequestration, the variable should be the amount of carbon sequestered. If the objective is NTFP-based livelihood enhancement, then the variable should be the change in NTFP production from such lands. Specifying a list of 'acceptable' species gives the impression that the objective is biodiversity conservation/restoration. If so, simply planting trees (even if chosen from within a list) will hardly be enough. In areas that are open natural ecosystems or managed grasslands, the restoration/management objective should be mainly grasses and shrubs, with few trees. Furthemore, in all cases (biodiversity/carbon/livelihoods), the change has to be a permanent addition, not just an addition for 10 years. The trees should be resilient to climatic shocks and climate change. Therefore the credit obtained from any such changes should be 'temporary' and subject to continuous verification. The scheme must also prescribe a robust, cost-efficient monitoring and verification model for which satellite-based and drone-based remote sensing techniques need to be developed.
- "Tree-centric" focus excludes other types of ecosystems: When it comes to preserving II. natural ecosystems, the terms "reforestation" and "restoration" are often used interchangeably. While reforestation primarily aims to establish tree cover, restoration goes beyond tree planting. Ecological restoration requires an in-depth understanding of native tree species, shrubs and grasses within a specific biome to create a conducive environment for biodiversity to flourish. While it includes tree planting, it also incorporates essential measures such as controlling invasive species, maintaining diversity, restoring vegetation composition and structure and managing competition. Ultimately, we need to recognise that plantations are not a replacement for natural forests and cannot compensate for the loss of ecosystem services and other benefits that accrue from various natural ecosystems. Several studies have shown that natural regeneration has greater benefits for biodiversity and ecosystem services, including carbon sequestration and hydrologic services. Managing invasive alien species on the other hand remains a challenge even when passive regeneration strategies are followed, and often requires proximity to source populations of the species, besides dispersal and pollinating fauna. This scheme should envision and encourage an assisted natural regeneration framework that will naturally allow a diversity of species to grow.
- III. **Planting must be sensitive to location and context:** The choice of species and planting densities must be based on biophysical and ecological considerations. While the differentiation proposed based on rainfall zones is commendable, this is inadequate to account for other relevant attributes such as soil, water and topography. For example, species



of trees that are suitable for valley bottom planting, may not fare well on hill slopes or hill tops and vice versa. Notably, the Bonn Challenge takes the 'Forest and Landscape Restoration' approach, the principles of which recognise that restoration is much more than just planting trees, and emphasises the need to take local context and ecology into account.

- IV. Unnaturally high densities of trees: The uniform recommendation of 100-1000 trees per hectare is unreasonably high in the subhumid, semi-arid and arid regions of India and must be reconsidered (See response to Clause 4 below). Research has shown that in semi-arid areas, medium density of trees (<100/ha) have the highest benefits for water recharge. Furthermore, there is potential to have a dynamic, broader and non-prescriptive list of species which learns from local knowledge, such as that captured in People's Biodiversity Registers, to improve ecological suitability and user choice. The list can have "no-go rules", such as including exotic or non-native species (and any such species currently listed must be excluded). These steps would make the planting exercise sustainable regarding water, energy needs and management/monitoring.
- V. Need for attention to rights and equity concerns: As the scheme allows a wide variety of participants in the GCP, it is important to pay attention to entry barriers and power imbalances. Lower-income households (such as forest-dwelling and pastoral communities) have a greater dependence on forests and other natural ecosystems, for pasture, fuelwood, food, etc., and the scheme must be cognisant of this dependence. The rules must take into consideration the tenurial arrangements and socio-economic dependencies on the lands that may be used for plantation activities to avoid disruption of livelihoods. As the market-based mechanism introduces a significant shift (and new actors) in the management of land, the government must promote awareness and capacity of local communities and institutions and ensure their informed and co-equal participation in the GCP.



## **PART 2: CLAUSE-WISE RESPONSE**

#### Clause 1

S. No.	Project eligibility and verification parameter	Description of parameter
1	Type of Project	Tree plantation (except mangrove)

- 1i. As of 7th November 2023, the MoEFCC has notified the draft methodologies for 'Tree Plantation based Green Credit' and 'Water Harvesting based Green Credit' for public consultation. While the preparation of the various methodologies and procedures relating to GCP may be undertaken in a staggered manner, it is important that all activities eligible for green credit under the GC Rules commence at the same time to avoid any inadvertent (or implicit) prioritisation of any one or few activities. If MoEFCC commences the GCP with only tree plantation based green credit, it will incentivise proponents to channel their resources/efforts into this activity over other eligible activities such as water management or sustainable agriculture, while trade-offs relating to land and biophysical resources persist between these activities. This would be contrary to the spirit of the GCP which recognises that various contextual activities are required to achieve desirable environmental outcomes.
  - **Recommendation:** MoEFCC must publish the draft methodologies for all activities, and other aspects, such as the market mechanism, for public consultation (ideally with a window of 60 days) and finalise all relevant details before operationalising the GCP.



S. No.	Project eligibility and verification parameter	Description of parameter
2	Project Proponent	Eligible project proponents: All persons and entities including individuals/FPOs/Cooperatives/Forest Management Committees/Sustainable Agricultural Enterprises/SHGs/Eco-development committee/Urban and rural local bodies

- 2i. While the description of project proponents is broad, allowing wide participation in GCP, it is insufficient for proper clarification of rights and responsibilities relating to their participation in GCP. It is important to ensure that entities that participate on a funding-only basis (i.e., provide financial investment for participation through individuals, local bodies, etc.) do not unfairly corner the benefits of the scheme.
  - **Recommendation:** The registration process must take into account both the project proponent and the de jure rights-holder or owner-manager of the land. If these are separate entities, an agreement between the parties (as detailed in point 5ii) must be a prerequisite for enrollment.
- 2ii. 'Sustainable Agricultural Enterprise' is not a well recognised term.
  - **Recommendation:** The intent of this term may be clarified/reconsidered. Additionally, the terms 'CFR Gram Sabha', 'PESA Gram Sabha' and 'customary right-holders in Schedule VI areas' may be included for increased awareness.



S. No.	Project eligibility and verification parameter	Description of parameter
3	Site Selection	Any patch of government/panchayat/community land/individual land suitable for plantation

- 3i. While this criterion maximises the potential land area for tree planting, the condition "suitable for plantation" lacks clarity and is not well understood. As a result, site-specific factors such as soil type, depth of soil layer, slope and water availability that are important for successful tree planting may get neglected hampering the success of the program.
  - Recommendation: The suitability of land for plantation should be defined as per agroecological and biogeographic zones. It should explicitly mention the measures that need to be taken to make land suitable (such as soil restoration) and must safeguard against the removal of existing natural vegetation. Furthermore, the availability of water for creating high-density plantations in semi-arid areas is a crucial limiting factor. Therefore, tree density should match natural water availability or rainfall, and site selection must stipulate against the use of additional irrigation facilities.
- 3ii. Care should be taken that panchayat/community lands that are earmarked for livestock grazing are not appropriated for tree planting activities under this scheme. Diversion of grazing land can compound India's fodder deficit and negatively impact the livestock sector.
  - Recommendation: The selection criteria must take into account the existing land use and livelihood dependencies. To improve ecological suitability in drier regions and user choice, native grass and shrub species may also be prescribed in Appendix-I in addition to forestry and horticultural species. Extreme soil disturbance must be avoided in such areas (e.g. trenching and bunding), as this can lead to soil degradation, and loss of below-ground carbon.
- 3iii. It is unclear whether the lands used for plantation need to be contiguous. Especially in the case of community/panchayat lands, available land may be non-contiguous which creates confusion regarding their eligibility for GCP.
  - **Recommendation:** It should be clarified that lands that are non-contiguous but located within a defined area/limit are eligible for GCP based on the aggregate land area.



S. No.	Project eligibility and verification parameter	Description of parameter
4	Tree specifications	
4a	Tree species with respect to agroclimatic zones	New plantation will be considered as eligible for GCP.  Plantations with indigenous tree species will be eligible.  • Rainfall zone wise species (as per Annexure-I)  • Horticultural tree species (as per Annexure-I)  • Bamboo species are included
4b	Minimum number of trees	Plantation of minimum 100 trees is required for qualifying under Tree Plantation based Green Credit
4c	Density/Spacing at the time of plantation	Density: Minimum 100 trees per hectare and maximum 1000 trees per hectare shall be planted  Details about availability of quality planting material and technical inputs can be accessed from local Forest/Agriculture Government functionaries

- 4i. If only "new plantations" are covered, and for a period of 10 years only, then this may divert resources and efforts from existing/older plantations. Such diversions are scientifically unsound, as older plantations (i.e. beyond the sapling or pole stage) are likely to have higher survival rates and greater resilience to extreme weather events, providing stable above- and below-ground carbon stocks.
  - Recommendation: Existing plantations and plantations beyond 10 years must be eligible under the GCP, and green credits may be calculated based on incremental growth or benefits. Furthermore, since ecological value increases with age, older plantations should be valuated at higher returns. A possible mechanism can be via "bonus" credits accruing every 5 years after the initial credit program ends. Such mechanisms can be evolved through wider consultation with stakeholders and experts.



- 4ii. It is encouraging to see the inclusion of forestry and horticulture species in the rules but the latter should be restricted to private lands so that native species with nutritional or socio-economic value are not inadvertently discouraged.
  - Recommendation: Horticultural species should be restricted to private lands, and native species with nutritional or socio-economic value (e.g. fodder) should be promoted for gender-inclusive climate action as described in the G20 New Delhi Leaders' Declaration.
- 4iii. The specification of forestry and horticultural species by rainfall zone is commendable. Yet the rules are insensitive to this and other biophysical and ecological considerations regarding planting densities, promoting a uniform recommendation of 100-1000 trees/ha, which is unreasonably high in India's subhumid semi-arid and arid regions. Foresters use such artificially high densities to promote straight boles (or trunks) and then harvest underperforming saplings (thinning). Still, these operations would impact the landowners' credit earnings and violate the letter and spirit of the GC Rules.
  - Recommendation: The conditions determining plantation densities or spacing must be sensitive to rainfall zones and biophysical constraints (e.g. biogeographic zones, slope and aspect), and the naturally occurring vegetation type of that area (including Open Natural Ecosystems).
- 4iv. Trees growing at artificially high densities are also prone to higher mortality, especially in drier regions or following an extreme weather event. Dead trees are prone to fires that threaten lives, livelihoods and ecosystems and, vitally, release stored carbon into the atmosphere, defeating the purpose of the GCP. Decades of agroforestry research have shown that tree densities approaching 1,000/ha are only sustainable when trees are grown in a line along a farm boundary (or bund). High-density blocks cannot be sustained in drier regions where groundwater depletion is already threatening food security.
  - **Recommendation:** The regulations regarding plantation densities or spacing must also be sensitive to rainfall zones, but block plantations should not exceed 400 trees/ha, even in the highest rainfall regions. In subhumid, semi-arid and arid regions with lower tree densities, the Draft TP Methodology can recommend planting native grass and shrubs which can sequester carbon into stable belowground stocks, and form important habitat for endangered dryland species.



S. No.	Project eligibility and verification parameter	Description of parameter
5	Registration	Through Self-Certification  (i) Baseline date - geotagged photo(s) of the proposed location along with list of existing trees and GPS boundary of site(s).  (ii) Proposed land should be free of encumbrances - along with land ownership record  (iii) Name, Aadhar, PAN (if required) and bank details of authorised representative along with certificate of registration of project proponents.  (iv) Project proponent need to give commitment to maintain the plantation up to 10 years.  (v) Undertaking that no natural ecosystems are harmed due to the project.  (vi) Geotagged photo(s) of the project activity as in point 7.  Self-certified submissions may be subjected to audit and if found misleading, project will be liable for disqualification and punitive action as per Green Credit Rules, 2023.

- 5i. Some eligible entities, such as farmers and rural local bodies, may not have the ability or capacity to collect the required baseline data (geotagged photos etc.), causing an entry barrier and skewing the distribution of benefits.
  - **Recommendation:** There must be a government-facilitated process for registration (which may be through the Ministry of Rural Development/Panchayati Raj) to ensure that entry barriers, especially in rural areas, are minimised.
- 5ii. Requiring only land ownership records as part of registration can result in tenurial/usufruct rights being overlooked, especially in the case of panchayat/community lands.
  - Recommendation: For panchayat/community lands, the application process must include a legal agreement or MOU between the owner-manager or rights-holder of that land (CFR Gram Sabha, PESA Gram Sabha, Customary rights-holder in Schedule VI areas or Gram Panchayat as the case may be) and the project proponent approving the enrollment, including the choice of species, and the distribution of benefits, costs and responsibilities. In the case of private lands, if the applicant is a person/entity other than the owner or rights-holder, a consent form by the owner must be submitted.



- 5iii. The process of recognition of community rights under the Forest Rights Act 2006 is far from complete in most parts of the country. This means that the owner-manager of the land can change in the near future.
  - Recommendation: It should be made clear that no activity or agreement entered into as part of this scheme, or credits received, shall impede the recognition of rights under the Forest Rights Act 2006 and any consequent changes in the Record of Rights or transfer of control. If such changes occur, the project proponent should be required to obtain the consent of and enter into an agreement with the new owner-manager or rights holder.
- 5iv. The time limitation of 10 years for the maintenance of plantations is unjustified. Environmental services from plantations are typically incremental over time which makes it important to focus on their continuing maintenance.
  - **Recommendation:** As per point 4i, plantations beyond 10 years must be eligible under the GCP to achieve their continued maintenance, and a "bonus" points scheme must evolve for every 5 years (or some such period), after the initial 10 year period ends.
- 5v. The recognition that tree planting must not harm other natural ecosystems is a positive step. However, the term "natural ecosystems" is ambiguous and is not uniformly understood by all. For instance, Open Natural Ecosystems such as semi-arid grasslands and scrub forests are under threat due to misclassification and mismanagement, and plantation activities in such ecosystems are harmful to local biodiversity. This issue has received positive consideration from the Standing Committee of the National Board for Wild Life in its 74th meeting dated 29 August 2023.
  - Recommendation: Natural ecosystems must be defined keeping in mind the wide diversity of ecosystem types in India, and the specific actions that entail damage. For e.g., clearing of lianas and other natural climbers should not be allowed. In addition to forestry and horticultural species, native grass and shrub species may also be prescribed in Appendix-I to cater to varied ecosystem types and livelihood dependencies. Extreme soil disturbance must be avoided in such areas (e.g. trenching and bunding).
- 5vi. As per Rule 4(5) of the GC Rules, the GCP Administrator shall cause the activity to be verified by a designated agency upon receipt of application by an eligible entity. The self-certification mechanism cuts through this requirement and may result in improper/incorrect assessment of harm to natural ecosystems.
  - Recommendation: To ensure that natural ecosystems (which include landscapes such as savanna grasslands, marshes, scrub forests, deserts, rocky outcrops and glades which are currently misclassified and viewed as non-productive/marginal systems) are not harmed, it is important that the certification about 'no harm to natural ecosystems' involves a scientific assessment.



- 5vii. There is no "disqualification and punitive action" set out or contemplated in GC Rules. Further, such reactive action may be inappropriate in the case of harm to natural ecosystems due to tree planting as the damage would already be done.
  - **Recommendation:** Applicable disqualification and punitive action need to be prescribed under the GC Rules to give effect to this condition. This suggestion is without limitation to the previous comment regarding the need for scientific assessment instead of self-certification.



S. No.	Project eligibility and verification parameter	Description of parameter	
6	*	Measurement of plants for issue of GCs will be carried as mentioned in point 7 will be based on the following two parameters	
6a	Survival Percentage	Survival percentage will be calculated based on the number of healthy standing individual plants as compared to initially registered number of plants	
6b	Height/Crown cover	Height or Crown cover will be chosen by the project proponent during certification as an indicator of growth.  During each monitoring period, the chosen parameter will be measured on a sampling basis (as per defined protocol) and compared with	
		earlier measurement recorded during the previous period.  Percentage of trees showing growth will be recorded.	

- 6i. As mentioned in point 4iv, trees growing at artificially high densities are also prone to higher mortality, especially in drier regions or following an extreme weather event. This can affect the sustainability of plantations and credit earnings.
  - Recommendation: Please see recommendations under clause 4 for relating to tree specifications. Further, for verification purposes, a scientifically designed protocol for implementing geospatial tools in mapping areas and measuring growth (in terms of ground cover for non-tree plantations and crown cover for tree plantations) should be developed as detailed in point 8 below.
- 6ii. The terms 'monitoring period' and 'sampling basis' need to be defined.



S. No.	Project eligibility and verification parameter	Description of parameter		
7	Calculation of issuance of Green Credit (GC)	At the end of 1 <sup>st</sup> year of plantation At the end of 3 <sup>rd</sup> year of plantation At the end of 6 <sup>th</sup> year of plantation At the end of 10 <sup>th</sup> year of plantation Total  Calculation of GCs = Total Number of trees certification * Survival Percentage * Percentage of trees show * Percentage of year wise * Multiplier for rainfall zo List of multiplier for rainfall	ving growth distribution one	of GCs
		Annexure-1		

- 7i. As the project proponent undertakes to maintain the plantation for a period of 10 years only (and only new plantations are eligible), it is possible that a proponent may clear or allow the degradation of the standing trees upon receiving 100% Green Credits after 10 years. This is undesirable and contrary to the objective of the GCP.
  - Recommendation: We reiterate our recommendations relating to the eligibility of existing plantations and plantations beyond 10 years. At the minimum, there should be (i) a process for the recording of tree plantations grown on government/community/panchayat lands as 'forest' in accordance with the Forest (Conservation) Act, 1980, (ii) disqualification criteria against the re-enrollment of project proponents who have cleared tree plantations upon completion of the 10 year period, and (iii) payments for Green Credits should be on annual basis and based on annualised value of the credit, and conditional upon continued presence and quality of the ecosystem beyond the 10 years.
- 7ii. Although Appendix-I lists a long list of species, there is no incentive to plant a diversity of species. It is important to ensure forest diversity to avoid monocultures that are less beneficial to the environment and people.



 Recommendation: Diversity of tree, shrub and grass species that support other biodiversity (e.g., birds and bees) must be a criterion in the calculation of Green Credits. This can be included by adding a multiplier for diversity. For instance, (as 0.05\*number of species planted)

■ 1 species: \*0.05 (strong disincentive for monoculture)

5 species: \*0.2510 species: \*0.50

■ 20 or more species: 1.00

7iii. The multiplier based on rainfall zones is too simplistic for capturing the site suitability of tree plantations and the multiplier range of 1 to 1.3 is too narrow considering the wider variation in the plantation densities that are appropriate for different biogeographic zones.

• **Recommendation:** We reiterate the recommendations in points 3i, 4iii and 4iv on the need to account for the biophysical constraints and ecological conditions in determining planting density and permitted species.



S. No.	Project eligibility and verification parameter	Description of parameter
8	Verification and issuance of GCs	<ol> <li>Project proponent to submit geotagged photos(s) of the project activity as per the issuance years in point 7 and populate survival and growth data on the GCP Registry/app.</li> <li>Physical Verification:         <ul> <li>For projects with &gt; 500 to 5000 trees: Existing Government machinery (Revenue, Forest, Agriculture, Irrigation, Municipal, Deptt. field staff) to verify</li> <li>Large projects with &gt; 5001 trees: Third-party verifiers (designated under Green Credit Rules, 2023)</li> </ul> </li> </ol>

- 8i. It is unclear if the physical verification is to be done annually/periodically or only for those years relevant for the calculation of Green Credit. To ensure sustained management of trees planted, the monitoring must be periodic and not tied to the calculation of Green Credit.
  - **Recommendation:** The monitoring frequency must be prescribed in the Draft TP Methodology.
- 8ii. High monitoring and verification (M&V) costs have been the bane of all market-based forest carbon sequestration schemes. These costs need to be factored into the GCP and who will carry out the M&V and who will pay these costs for it needs to be clarified in the notification. While satellite-based and drone-based remote sensing techniques are evolving to reduce the costs, there is a huge absence of reliable, region-specific ground truth datasets in India for this work, which will have to be built with public funding.
  - O Recommendation: To facilitate M&V using cost-efficient satellite-based and drone-based remote sensing techniques, an extensive ground-truthing exercise combining existing data and publicly-funded data collection from data-deficient areas must be undertaken in a phased manner. This data can be collected with the involvement of local (taluka/district level) colleges in collaboration with local communities and institutions (e.g., Biodiversity Management Committees) and used to ground-truth remotely sensed data across existing and emerging platforms. This exercise will serve multiple purposes through student training, local capacity-building and independent M&V. Additionally, the details relating to M&V costs need to be specified as part of the GC Rules. Regardless of who provides the funds, the

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payments to any M&V agency must be channelled through a government agency (preferably at the taluka level) to avoid conflict of interest.



S. No.	Project eligibility and verification parameter	Description of parameter
9	Green Credit Programme process	<ol> <li>Registration of the project proponent</li> <li>Project submission</li> <li>Project listing</li> <li>Project Registration</li> <li>Monitoring and Verification</li> <li>Issuance of Green Credits</li> <li>Transfer and retirement</li> </ol>

- 9i. Project Submission, Project Listing and Project Registration are three different stages. However, the details of these stages, or the distinction between them, are not clearly laid out in the Draft TP Methodology. Currently, only a self-certification is required for registration.
  - **Recommendation:** Details regarding these stages and the processes involved should be specified and the methodology must comply with Rule 4(5) for the GC Rules.
- 9ii. The details and procedures relating to the issuance, transfer and retirement of Greed Credits are yet to be notified under the GC Rules. It is important that these are reviewed conjunctively.
  - **Recommendation:** MoEFCC should publish the draft methodologies for all activities, and other aspects, such as the market mechanism, for public consultation (ideally with a minimum period of 60 days) and finalise all such relevant details before operationalising the GCP.
- 9iii. There is a need for further clarity regarding the effect and process of retirement to avoid situations where tree plantations that have received 100% Green Credit under GCP are destroyed and the lands are re-enrolled under the scheme to seek further benefits.
  - Recommendation: Conditions relating to retirement should be prescribed in the Draft TP Methodology to address this situation in accordance with recommendation 7i.



S. No.	Project eligibility and verification parameter	Description of parameter
10	Any tree plantation projects covered under any existing/new laws, as amended will also get registered under the Green Credit Rules, 2023 and may trade/generate the GCs generated as mandated under these laws/regulations.	

- 10i. This contradicts Rule 2(3) of the GC Rules which provides that the green credit generated or procured to fulfil any obligation in compliance with any law for the time being in force shall not be tradable. Activities that are pursuant to compliance with any law (e.g., Corporate Social Responsibility or Compensatory Afforestation) must not result in the generation of tradable credits to avoid double-dipping of benefits.
  - **Recommendation**: This clause should be redrafted to disallow activities pursuant to legal obligations from accruing tradable Green Credits.
- 10ii. There is potential for confusion regarding the eligibility of existing plantations based on the wording of this clause.
  - **Recommendation:** In line with our previous suggestions, existing plantations and plantations beyond 10 years should be eligible for GCP and this ambiguity needs to be ironed out.



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