Plan to Accelerate 3. Transforming Agriculture and Food Systems Carbon removal and resilience through agriculture

Axis: 3
Key objective: 8. Land restoration and sustainable agriculture
Solution: Accelerate Carbon Dioxide Removal through Agriculture
Host Initiative: Alliance-Bioversity-CIAT (on behalf of CGIAR),
Stakeholders/Partners: ERW Field Data Partnership, 4per1000 Initiative, Energy Transitions Commission, India (ICAR), Brazil (MAPA / EMBRAPA)
Scope: Agriculture-based carbon removal methods across multiple geographies, focusing on scientific validation, data sharing, and coordinated design of research, measurement, and deployment frameworks.

Levers assessment:

- **Risk-informed decision-making:** Medium maturity
  - *Rationale: Risk-informed decision-making criteria and tools for farmers and project developer partners exist (agronomic and soil models, established carbon removal methodologies), but these tools require more diversity of data and integration into agricultural policy, farmer programs, and climate finance. Current efforts remain fragmented, with insufficient mainstreaming into adaptation and mitigation planning. This coalition can advance maturity by embedding the best available science on carbon removal in different soil contexts into national accounting and crediting methodologies.*
- **Technology shifts:** Medium maturity
  - *Rationale: Core practices are technically feasible and increasingly deployed in a variety of cropping and soil conditions Scaling requires adaptation to local conditions and robust agronomic trials. Technologies are unevenly validated across geographies and crops.*
- **Knowledge & Capacity building:** Medium maturity
  - *Rationale: Research capacity is strong in some regions (e.g., Brazil, US, Europe), but uncoordinated across regions, and extension networks for farmers are underdeveloped. Many farmers lack access to training, tools, and support for implementing these methods. Coalition would expand cross-country scientific research coordination and farmer-facing capacity.*
- **Inclusive decision-making governance & design:** Medium maturity
  - *Rationale: The governance of the Coalition will bring together national research entities in participating countries and academic research programs, alongside stakeholders representing agriculture at both industrial and last-mile scales, carbon removal solution providers, and linked industries required for deployment. Civil society coordinating organizations with relevant expertise will play a convening role, ensuring information, data, and best practices are transferred among national actors and that governance remains inclusive and participatory.*
- **Standards & Taxonomies:** Low maturity
  - *Rationale: In the context of compliance systems, this lever refers to the existence and acceptance of approved methodologies under regulatory programs. For emissions trading systems (ETS), these are overseen by national or regional regulators (e.g., EU Commission DG CLIMA for EU ETS, CARB for California, MOE for Korea, MEE for China). For Article 6.2, methodologies are determined by participating*

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countries, while for Article 6.4, the UNFCCC Supervisory Body approves methodologies under the authority of the CMA. Other bodies like ICAO's Technical Advisory Body (for CORSIA) and ISO standards also provide influential frameworks. Currently, agricultural carbon removal methods like biochar and ERW are not integrated into these compliance standards. National GHG accounting due to the lack of harmonized IPCC Tier 1 methodologies. The Coalition can play a role in advancing the development, approval, and harmonization of agricultural CDR methodologies for compliance contexts, ensuring they can be recognized across jurisdictions and markets.

- **Supply:** Medium maturity
  - *Rationale: Feedstock (biomass, liming agents/remineralizers, agricultural residues) supply exists in abundance, but mobilization is hindered by logistical challenges, farmer incentives, and financing. Without dedicated support, supply chains remain fragmented.*
- **Demand:** Low maturity
  - *Rationale: Market demand for ag-based carbon removal is limited and highly dependent on voluntary carbon markets. Few compliance or procurement programs exist, though policy frameworks to drive demand are emerging (EU CRCF, Brazil SBCE, India CCTS). The Coalition's core objective is not to directly facilitate purchases but to accelerate the approval and integration of agricultural carbon removal methodologies into compliance systems, making these approaches eligible and therefore purchasable in regulated markets.*
- **Public/private finance:** Low maturity
  - *Rationale: Philanthropic funding is growing but insufficient; private investment is constrained by uncertainty in MRV and permanence. Public agricultural subsidies require these practices to first contribute towards national accounting, which require Tier 1 and 2 methodologies . The Coalition's first goal is to make investment and finance bankable by accelerating the approval of agricultural CDR methodologies within compliance systems. Once these methods are recognized and eligible, the Coalition can then graduate to a focus on policies that directly enhance public and private investment, including mobilizing blended finance and reorienting public agricultural support.*
- **Partnerships and collaboration:** Medium maturity
  - *Rationale: International and national collaborations focused on regenerative agriculture exist (e.g., CGIAR, EMBRAPA, ICAR, universities), but the scope of carbon removal through these agricultural practices are currently non-existent, and coordination between research actors remains fragmented, globally. Coalition provides a multilateral platform for joint design, data-sharing, and scaling.*
- **Policy & regulatory:** Low maturity
  - *Rationale: Few countries have explicit agricultural carbon removal frameworks; notable exceptions include the EU's Carbon Removal Certification Framework (CRCF), Brazil's national fertilizer policies recognize remineralizers, and Denmark's biochar roadmap, which signal early moves toward integrating these methods into formal policy. Current policies typically treat soil health and climate separately. Coalition could foster harmonized approaches and encourage countries to adopt supportive regulatory frameworks.*
- **Public opinion:** Low maturity
  - *Rationale: Agricultural CDR remains obscure outside expert and farming circles. Public awareness of biochar, ERW, or soil carbon is low, limiting pressure on governments. Coalition can elevate visibility through demonstrations, pilots, and communication campaigns.*

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Expected impact of this plan on the 2030 targets (if any): High

By 2030, the Global Carbon Harvest Coalition is expected to position **soil carbon enhancement, biochar, and enhanced rock weathering** as validated, regulator-approved methodologies within national compliance systems (ETS, NDC accounting) and international markets under **Article 6**. Through coordinated multi-country field trials and MRV innovation, the coalition will deliver a robust global evidence base that enables their large-scale adoption. In short: this PaS will ensure that agriculture-based carbon removal is no longer a fragmented or experimental space but a **recognized, integrated component of global climate action**, directly advancing both mitigation and resilience targets for 2030.

The expected impacts on 2030 targets are:

- **Integration into NDCs and ETS**: At least several founding member nations (led by Brazil and joined by partners in Africa, Asia, and Latin America) incorporate agricultural CDR pathways into their 2030 NDC revisions and ETS frameworks

- **High-integrity credits under Article 6**: Compliance-ready methodologies are approved, enabling issuance of internationally transferred mitigation outcomes (ITMOs) from agricultural CDR projects by 2030

- **Acceleration of removals toward 2030 benchmarks**: Validated pathways contribute measurable CO_2 removals—potentially hundreds of Mt annually by the late 2020s, with multi-gigaton annual potential by mid-century.

- **Co-benefits for resilience and productivity**: Widespread adoption improves yields by 10–25% in degraded soils, strengthens resilience to drought and extreme weather, and reduces fertilizer dependence

By 2028-20230, this plan aims to unlock measurable progress through three main impact pathways:

1. **Accelerating scientific validation and data availability:** Coalition will develop coordinated, rigorous multi-country trials to build the evidence base on carbon removal quantification in different soil, crop, and environmental conditions. This will enable the scientific literature to establish Tier 1 and country-specific Tier 2 emissions factors. , harmonize MRV, and share results globally to accelerate credibility and acceptance of agriculture-based CDR methods.

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2. **Harmonizing monitoring-reporting-validation (MRV) methodologies:** Coalition will develop harmonized MRV methodologies for inclusion in Article 6.2 and 6.4 carbon credit issuance and trading, building upon the best available science and existing methodologies. These MRV methodologies would be prioritizing both rigor and scalability to drive availability of these solutions to more farmers.
3. **Expanding farmer adoption pathways:** By embedding risk-informed decision-making and building capacity, the plan will enable farmers to integrate CDR methods into production systems, sequestering carbon, improving resilience to climate impacts, and increasing overall productivity.

To pursue these objectives, the coalition will mobilize public, private, and philanthropic collaboration and contributions, in the form of co-designed research networks, finance mechanisms, early purchase programs, and supportive policies to unlock widespread deployment.

Expected contributions to global processes:

- **Global Stocktake (GST):** Provides robust evidence on the role of agricultural CDR to close mitigation gaps.
- **2030 Climate Solutions targets:** Advances food and land restoration strategies that contribute to emissions reductions and carbon removals.
- **SDGs:** Supports SDG 2 (Zero Hunger), SDG 12 (Sustainable Consumption & Production), and SDG 13 (Climate Action).
- **Article 6:** The Coalition will directly contribute to advancing the Paris Agreement's cooperative approaches under Article 6 by generating the scientific evidence, compliance-ready MRV systems, and regulator-approved methodologies needed for agricultural carbon removal pathways (soil carbon, biochar, ERW) to be integrated into carbon markets.

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Output	Action Scope	Action	Type of action	Implementation Lever	Responsible	Time horizon	Stakeholder engagement	Committed Stakeholders
Coalition established and governance structure agreed	Brazil, India and other member nations (to be confirmed)	Terms of reference finalized and endorsed by participating countries and institutions; country parties, and implementation partners enter into memoranda of understanding (MOU)	New action	Inclusive d… Partnership…	Brazil: (MAPA/EMBRAPA) India (ICAR)	Novemb…	Countries	Alliance-Bioversity-CIAT (on behalf of CGIAR) ERW Field Data Partnership, 4per1000 Initiative Brazil: (MAPA/EMBRAPA) India (ICAR)
A globally harmonized evidence base on SOC, biochar, and ERW, enabling validation across geographies	Brazil, India and at least 3 other member nations (to be confirmed)	Coordinate large-scale, multi-site field trials across coalition countries; pool results into a common repository.	New action	Technology… Partnership… Knowledge…	Alliance-Bioversity-CIAT (on behalf of CGIAR)	Novemb…	Technical…	Brazil: (MAPA/EMBRAPA) India (ICAR) ERW Field Data Partnership, 4per1000 Initiative Brazil: (MAPA/EMBRAPA) India (ICAR)
Compliance-ready MRV toolkit for agricultural CDR, tested and validated for Article 6 and ETS use	Brazil, India and at least 3 other member nations (to be confirmed)	Collaborative R&D projects to advance MRV methodologies for agricultural CDR, including joint research, data standardization; Launch a global MRV Prize (inspired by the XPRIZE model) to crowdsource low-cost, high-quality monitoring and quantification solutions for soil organic carbon, biochar, and enhanced rock weathering.	New action	Technology… Standards … Knowledge…	Alliance-Bioversity-CIAT (on behalf of CGIAR)	Novemb…	Countries	XPRIZE; Brazil: (MAPA/EMBRAPA) India (ICAR)
Agricultural CDR methodologies (SOC,	National, Global	Prepare and submit methodologies for regulator	New action	Standards …	Brazil, India and at least 3 other	Novemb…	Regulato… Countries	

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biochar, ERW) submitted and accepted under Article 6, ETS, and NDCs		approval (ETS, Article 6.4 Supervisory Body); engage in SBSTA/UNFCCC processes			member nations (to be confirmed)		Multi-sta…	
Enabling policies and incentive frameworks established in coalition member countries to support adoption	Member-country agricultural systems	Translate trial results into domestic policies: subsidies, credit recognition, farmer incentives, safeguards. Co-develop farmer adoption packages (training, finance, technical support); roll out through cooperatives and extension services	New action	Standards … Demand Policy & re… Public/priv… Supply	Brazil, India and at least 3 other member nations (to be confirmed)	Novemb…	Regulato…	NA