



Transformational Agroecology across Food, Land, and Water systems

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Proposal

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Note to readers: please use the hyperlinks throughout the proposal for definitions, abbreviations, partners, references, etc.

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Acronyms

ACT	(Agroecology Criteria Tool)	INERA	Centre National de la Recherche Scientifique et de Recherches Agricoles
AE-I	Agroecological Initiative	IRESA	Institution de la Recherche et de l'Enseignement Supérieur Agricoles
ALiSEA	Alliance in Southeast Asia	ISFAA	Kenyan Intersectoral Forum on Agrobiodiversity and Agroecology
ALLs	Agroecological Living Labs	KCOA	Knowledge Center for Organic Agriculture in Africa
ASSET	The Agroecology and Safe food System Transitions (ASSET) project	LCSR	Livestock, Climate and System Resilience
BAU scenarios	Business as usual scenarios	LMICs	Low- and Middle-Income Countries
CBA	Cost-benefit analyses	MEL	Monitoring, Evaluation and Learning
CBD	Convention of Biological Diversity	MELIA	Monitoring, evaluation, Learning and Impact
CCAFS	Climate change, Agriculture and Food Security	MITIGATE+	Mitigation and Transformation Initiative for GHG Reductions of Agrifood Systems-Related Emissions
CIRAD	Centre de Coopération Internationale en Recherche (France)	MSP	Multi-stakeholder Platforms
CIRDES	Centre International de Recherche	NAFFRI	National Agriculture and Forestry Research Institute
CRPs	CGIAR Research Programs	NAPs	National Adaptation Plans of the UNFCCC
DCEs	Discrete choice experiments	NARES	National Agricultural Research Extension Systems
EiA	Excellence in Agriculture	NARS	National Agricultural Research Systems
EU	European Union	Nature+Agriculture	Nature Positive Agriculture
EU-INTPA	EU Directorate-General for International Partnerships	NDCs	Nationally determined contributions
FISH	Agri-Food Systems CRP	OFDA	Open and Fair Data Assets
FLW	Food, land and water	SDC	Swiss Agency for Development and Cooperation
FSAs	Food system actors	SDGs	Sustainable Development Goals
FTA	Forest, Trees and Agroforestry	SESF	Social-ecological systems framework
GEI-CSV index	Gender Empowerment Index for Climate-Smart Villages	STi	System transformation indicator
GHG	Greenhouse gas	STRAFSGii	System transformation and Resilient Agri-food systems indicator
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH	STO	System Transformation Outcome
GRET	Groupe de Recherches et d'Echanges Technologiques	SuATI	Supporting Agroecological Transformations in India
HER+	Harnessing Equality for Resilience in the Agrifood System	TAPE-FAO	Tool for Agroecology Performance Evaluation
HLPE	High Level Panel of Experts	TEEB	The Economics of Ecosystems and Biodiversity

IDRC	International Development Research Centre	TPP	Transformative Partnership Platform
IDT	Initiative Design Team	UNFCCC	United Nations Framework Convention on Climate Change
IFAD	International Fund for Agricultural Development of the United Nations	WEIA	Women's Empowerment in Agriculture Index
IIAP	Instituto de Investigaciones de la Amazonía Peruana	WLE	Water, Land and Ecosystems
AE-I	Agroecological Initiative	WP	Work Package
ALLs	Agroecological Living Labs		

Glossary

Agroecology encompasses the science, practice, and social aspects of working towards transformation to sustainable and equitable food systems, from production through to consumption. Agroecology emphasizes use of biodiversity, natural processes, and recycling to reduce impact of environmentally disruptive inputs and increase resilience of farming systems, the co-creation of knowledge with local stakeholders to ensure culturally relevant innovation, and responsible and inclusive governance of natural resources. Agroecology recognizes the importance of agency for all actors involved in food systems and of connecting producers and consumers to ensure that methods of production and processing match consumer expectations.¹

Territorial Food Systems: Food systems “encompass the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries, and food industries, and the broader economic, societal and natural environments in which they are embedded”.^{2,3} A territorial approach to food systems contributes to defining boundaries to the food systems, and then to better defining the building blocks, actors and linkages that will be analyzed in this Initiative. Defining boundaries to food systems avoids the risk of a fuzzy² concept that is then difficult to operationalize. In this Initiative, the territorial food systems are circumscribed to a group of jurisdictions at the district or municipality level (depending on the country) in each selected country.

Agroecological principles are explicit statements comprising normative and/or causative aspects, that guide decisions and actions towards meeting agroecological objectives. There are 13 widely-accepted agroecological principles derived from the High-Level Panel of Experts on Food Security and Nutrition (HLPE) report, which are complementary to [FAO's](#) ten elements of agroecology, but more explicit and, therefore, more consistently interpreted.^{4,1}

Agroecological transformation describes the change of whole food systems into sustainable and equitable states, involving change in norms and institutions in the public and private sector that govern how food is produced, processed, transported, sold, and consumed, as well as the relationship between consumers and other food chain actors, including producers. A transformation may be triggered by a number of incremental transitions occurring over time.¹

Agroecological transitions Agroecological transitions describe how agroecosystems or food systems change over time —through the application of agroecological principles — to become more environmentally and economically sustainable, and socially equitable. Transitions may focus on the application of some but not necessarily all agroecological principles, and encompass parts of whole food systems, for example, farming, business models, services provided, consumption, etc. Transitions are grounded in the state of the system at the starting point for the transition and the specific geopolitical context that shapes its change trajectories.¹ Transitions can

spring from different starting points and move at different paces. Depending on local context, Agroecological Initiative (AE-I) conceptualizes three transition pathways that require support from various food system components and actors, namely: (i) agroecological 'intensification' (in current low-production systems with low inputs); (ii) the 're-design' of small-scale farming, currently with low profitability and high external inputs use; and (iii) 'conversion' (of profitable medium-scale enterprises with high external inputs use). This Initiative focuses on AE-I and AE-II during the initial 3-year timeframe.

Agroecological innovations Technological and institutional innovations that contribute to reducing impact of environmentally disruptive inputs and increasing resilience of food system components (including farming), and are the result of the co-creation of knowledge with local stakeholders and other food system actors (FSAs) to ensure culturally relevant innovations are promoted and that natural resources are managed responsibly and inclusively. Examples include practices, business models, and other institutional arrangements that contribute to these aspects.

Agroecological Living Labs (ALLs) are a mechanism or vehicle for a diverse set of actors (e.g., producers, traders, processors, consumers, and institutions) — who are part of the territorial food systems and landscapes in which ALLs are embedded — to exchange their views and knowledge, and co-develop and adapt agroecological innovations. ALLs also allow researchers to learn what works and what does not, as part of the effort to build scientific evidence for scaling agroecological transition out and up to other low- and middle-income countries (LMICs) (2024-2030). The ALLs will integrate agricultural, environmental, and socio-economic research as part of a continuous innovation cycle with a territorial approach. Partners will be involved in the design of agroecological adaptive scaling strategies (business models, policies, economic mechanisms, etc.) and in multi-stakeholder dialog to promote these.⁵

Summary table

Initiative name	Transformational agroecology across food, land and water systems
Primary Action Area	Systems Transformation
Geographic scope	<i>Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe</i>
Budget	US\$ 33,000,000

1. General information

- Initiative name: Transformational agroecology across food, land and water systems (Agroecological Initiative (AE-I) for short)
- Primary CGIAR Action Area: Systems Transformation
- Proposal Lead and Deputy: Marcela Quintero (CGIAR) and Matthew McCartney (CGIAR)
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- IDT-support team: Gabriela Wiederkehr Guerra (Initiative design process management, priority setting and stakeholder consultation reports), Claire Vukcevic (proposal enhancement and writing of selected sections), Carolina Gonzalez (MELIA), Arwen Bailey (meeting facilitation), Nadia Bergamini (agroecology expert), Olga Spellman (copy editing) (CGIAR)

2. Context

2.1 Challenge statement

Food systems should drive stability, food and nutrition security, poverty reduction, and economic growth. Instead, not only have they failed to feed the [690 million people currently undernourished](#), they are responsible for much of the world's greenhouse gas (GHG) emissions,⁶ for deepening social inequities, destroying biodiversity,⁷ polluting water sources,⁸ and depleting natural resources.⁹ Despite two-thirds of hungry people living and working in rural areas and 475 million of the 570 million farms globally being small-scale operations, >95% of research on agricultural and food systems is irrelevant to small-scale farmers.¹⁰

A redesign of food systems⁸ is urgently needed to simultaneously achieve ecological, economic, and social sustainability.¹¹ Agroecology is gaining prominence as an approach to achieve this radical shift. [Evidence](#) demonstrates how agroecological approaches can contribute to sustainable, resilient agricultural and food systems today and in the future.¹² Agroecology goes beyond demands for technical change, recognizing that enhancing the agency of farmers and FSAs (especially women and youth) is a prerequisite for transformative change.¹³

However, despite many locally appropriate agroecological solutions at farm level, mechanisms for scaling them to broader food, land, and water (FLW) systems are limited.¹⁴ Barriers include: (i) insufficient evidence and lack of knowledge of what agroecological innovations work, where, when, and why; (ii) insufficient integration of required capacities and resources; (iii) lack of, or misaligned, policies, institutions, and governance practices; and (iv) lack of financial mechanisms. This Initiative (the Agroecological Initiative (AE-I)) will provide evidence for the transformative nature of agroecology and its broad applicability to FLW system change, including identification of institutional innovations to promote uptake. By testing agroecological approaches across seven different socio-economic-political geographic contexts, we will use learning on what agroecological innovations work, where, and for whom, to craft replicable **agroecological transition models** that can subsequently (2024-2030) be applied to the FLW systems of other LMICs, eventually contributing to a critical mass capable of triggering broader-scale transformation of the FLW systems throughout the Global South.

2.2 Measurable 3-year (end-of-Initiative) outcomes

End-of-Initiative outcome: Contextually relevant agroecological principles are applied by farmers and communities across a wide range of contexts and are supported by other food system actors.

WP outcomes:

(WP1) FSAs — private sector, policymakers, and female and male small-scale farmers — collaborate with researchers in an international network of Agroecological Living Labs (ALLs) that promote integration of research and innovation processes to facilitate co-design and testing of context-specific agroecological innovations and broader learning of the biophysical and socio-economic conditions required for agroecological transitions. **Target:** At least 250 national and international researchers collaborating with FSAs (at least 7,000 farmers, 70 policymakers, 35 private-sector companies) across seven countries to co-design and test context-specific agroecological innovations. This work will raise awareness and provide access to a range of tools that around 2.2 million additional small-scale farmers, national research centers in the seven countries and beyond, and private sector companies from other regions, will use for supporting agroecological transitions.

(WP2) Researchers, policymakers, communities, investors, farmers, and other FSAs use knowledge gained from science-based assessments implemented in all seven ALLs, to implement agroecological innovations that are sustainable and enhance resilience. **Target:** an average increase of 25% in agroecological investment across seven ALLs.

(WP3 outcome 1) Investors, private sector, NGOs, and farmers participate equitably in partnerships to co-develop business models, linking agroecological innovations to markets and investment. **Target:** at least one strategic business partnership linking agroecological innovations to markets established and functioning in each ALL. **(WP3 outcome 2)** Investors, public sector, and farmer organizations co-design or adapt financial mechanisms that support agroecological innovations. **Target:** at least one financial mechanism in each ALL that supports adoption of agroecological innovation.

(WP4 outcome 1) National and regional policymakers and sectoral organization representatives co-develop and promote recommendations to effectuate the horizontal(across-sectors) and vertical/(across-scales) policy integration required to mainstream agroecological principles. **Target:** At least 20 national and sub-national policymaking bodies or sectoral organizations co-

develop, agree on, and promote policy integration recommendations. **(WP outcome 2)** Local organizations and authorities co-develop, strengthen, or adjust local institutions and governance mechanisms to better support agroecological transitions in each ALL. **Target:** At least one new or enhanced institutional arrangement in each ALL to better support agroecological transitions.

(WP5 outcome) Scientists, funders, policymakers, business partners, and civil society re-orient or adjust their strategies and action plans based on knowledge gained from scientific studies underpinning behavioral change mechanisms and capacities of farmers, business partners, and consumers to implement agroecological transformation. **Target:** Evidence of CGIAR and its partners' science reflected in at least 10 strategies/action plans per identified stakeholder group.

2.3 Learning from prior evaluations and impact assessments (IA)

The Agroecology Initiative (AE-I) builds [on a long history of work conducted in previous CRPs](#), most notably WLE, FTA, CCAFS, and FISH. The Initiative responds to key emerging themes from CGIAR-commissioned evaluations, which call for both more “integrated research and development platforms at multiple scales (local, national, regional/basin, and global) with strong interconnections between these levels”¹⁵ and more systems-focused research across “ecosystems, biodiversity, and livelihoods in agro-ecosystems”.^{16,17} Other lessons and recommendations from prior initiatives that have influenced the design of AE-I and will continue to underpin it as it develops, include:^{18,19}

- i) strengthened incorporation of theory-based working into planning, monitoring and evaluation (all WPs)
- ii) research priorities set with scalability identified as a priority from the outset (all WPs)
- iii) early engagement of partners to bridge the research to development divide through objective-oriented multi-stakeholder learning platforms (WP1)
- iv) sustained interaction with government partners and extension systems to ensure local-to national-level reach, ownership and potential to scale quickly (WP1, WP4)
- v) building synergies with other initiatives and boundary organizations (e.g., GIZ and Biovision) that can contribute to bringing researchers together with policy and development actors (WP1, WP3, WP4, WP5)
- vi) flexible, adaptive management plans that enable work to be re-targeted as understanding increases and context changes (WP1).

2.4 Priority-setting

Country selection used the following criteria: (i) existing CGIAR engagement and partnerships with local communities, National Agricultural Research Systems (NARS), sub-national and national governments; (ii) existence of multistakeholder platforms; (iii) opportunities for private sector engagement; and (iv) demand expressed from national partners for collaboration on agroecology. Sites with significant political instability and civil unrest were excluded due to the complexity of undertaking research in such countries. From the initial list of 19 potential countries, seven countries were identified. National and sub-national consultation meetings and key informant interviews (hereafter ‘stakeholder consultations’) were undertaken to pre-identify potential sites for establishment of ALLs in all seven selected countries.

One “territory” per country was prioritized, based on: (i) relevance to at least one of two prioritized generic agroecological transitions and alignment with context-related priorities; (ii) representation of diversity of ecological, governance, business, and social settings to enable generalization and comparability of results; (iii) diversity of production and livelihood system contexts; (iv) availability of past or ongoing agricultural research efforts from which to build or establish synergies; and (v) good networks with local communities, private sector, authorities, and NARS from which co-innovation processes can be developed. Further prioritization was informed by feedback received from stakeholder consultations, which led to the selection of a single area or site in each country ([Annex 3](#)), as follows: (i) Burkina Faso – priority area comprising Provinces Ouhimbira and Houet; (ii) India – Andhra Pradesh; (iii) Kenya – priority area comprising Kiambu, Machakos, Makueni, and Murang'a; (iv) Southern Lao PDR – priority area comprising Savannakhet, Attapeu and Xekong provinces; (v) Peru – Ucayali; (vi) Tunisia – Kef-Siliana; and (vii) Northeast Zimbabwe – priority area comprising Mbire, Murehwa and Nyanga.

A narrative and guiding questions were developed to ensure a degree of standardization in the information collected for each targeted territory and to enable identification of contrasting opportunities and barriers. Due to the COVID-19 pandemic, key stakeholder interviews were prioritized in countries where national-level consultations — even undertaken remotely — were not possible. Existing information about site characteristics, and reports from past workshops and meetings from our partners were used as references, when possible and if explicitly related to agroecological development. Consultation reports were produced for each country and consolidated, discussed, and analyzed to prioritize target territories from the pre-selected ones.

The stakeholder consultation process deepened our context-specific understanding of each proposed territory, providing insights on: (i) the viable agroecological transitions in a specific setting; (ii) the main livelihoods of male and female small-scale farmers; (iii) the status of existing agroecology projects and programs; and (iv) the interest in scaling and partner demand (private sector and policymakers). This facilitated the design of agroecology scaling processes in WP3 and WP4, and helped identify where existing knowledge and expertise is available for the research activities and methods in each Work Package (WP). Since a key priority in each territory is to establish an ALL and to develop, at territorial level, integrated solutions with different food system stakeholders — e.g., encompassing production technologies, producer-producer coordination (for agricultural and landscape management, learning exchange/scaling, and empowerment in governance), producer-commercial ally coordination (for inclusive business models and market arrangements), and enabling policies that favor agroecological transitions) — this learning provides a valuable baseline for scaling to achieve the outcome targets.

2.5 Comparative advantage

The involvement of a globally important organization such as the CGIAR brings the level of access, inter-disciplinarity, geographic breadth, bargaining power, and partner outreach capacity that AE-I will need to synthesize the learning, resources, and political goodwill across diverse countries and territories required to ‘springboard’ agroecological transitions from farm to FLW system scale, particularly in LMICs. In a world where the term “agroecology” is highly politicized and contested, One CGIAR and its partners are uniquely positioned to be an ‘honest broker’, conducting high-quality research, enhancing the evidence base, and producing global public goods.

AE-I combines efforts from seven One CGIAR entities, other CGIAR Centers and non-CGIAR Advanced Research Institutions and NARS, building on a long history of research to foster co-

learning and common approaches including, most significantly, helping to establish the [Transformative Partnership Platform \(TPP\)](#) on agroecological approaches, which involves key global and national stakeholders. This combination of efforts has led to other joint research and development initiatives, including, inter alia, (i) the EU Directorate-General for International Partnerships (INTPA) program on agroecological metrics, digital agriculture and private sector engagement; (ii) [the joint France-CGIAR Initiative to map capacities and evidence generated around agroecological principles and their efficacy](#); and (iii) proactive participation in the United Nations Food Systems Summit (NFSS) Agroecology and Regenerative Agriculture Coalition. AE-I will partner with non-CGIAR Advanced Research Institutions, National Agricultural Research Extension Systems (NARES) and other research partners, as well as with NGOs, civil society groups, private sector and scaling partners to maximize the chances of success.

2.6 Participatory design process

We undertook consultations ([Annex 1](#)) with a range of stakeholders, as well as continuous discussions with IDT members. The IDT conducted seven national and sub-national stakeholder consultation meetings and key informant interviews in the seven target countries (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe). These consultations reached over 150 stakeholders, including representatives of NARS (e.g., IAP-Peru, IRESA-Tunisia, NAFRI-Lao PDR, INERA/CIRDES-Burkina Faso, among others), private sector actors (e.g., representatives of small business initiatives), and national institutions (e.g., ministry representatives). During a preliminary design phase in 2020, and again throughout 2021, we consulted and brainstormed with funders and possible partners to explore potential synergies and collaborations (e.g., with various GIZ programs, the TRANSITIONS project funded by EU-INTPA, and the TPP, supported by the EU, France, and Switzerland).

The guiding questions and narrative used in the consultations facilitated: (i) better understanding of the demand for and perception of the Agroecology Initiative ([Annex 2](#)); (ii) identification of possible partners and initiatives for collaboration ([Annex 3](#)); and (iii) selection of specific territories from those that were pre-identified via validation by national and sub-national key stakeholders in each country ([Annex 3](#)). In addition to the meetings and interviews, where applicable, information was supplemented with additional knowledge derived from other sources, including previous workshops, information from past and current projects running in the prioritized sites (e.g., ASSET a knowledge hub for AliSEA – Lao PDR, ICRAF Eastern Kenya Agroecology case study, IKI-funded project on zero-deforestation business models in Peru, and more), and information available on relevant country and regional development policies, strategies and/or action plans. Discussions within the IDT and with national stakeholder focal points, fostered continuous feedback on the development of the Initiative-level components and WPs, enabling the expertise and knowledge of the proposed countries and identified territories to inform Initiative design.

Reports from the stakeholder consultations were developed for each country. By documenting the stakeholder consultations, key opportunities, barriers, and priorities were identified consistently for the context of each country and territory ([Annex 4](#)). This, complemented by the rich involvement of the IDT, ensured that the research and design of the Initiative and WP-level components were demand- and feedback-driven. In terms of demand, the Initiative responds to clear stakeholder demand, identified to push forward agroecology in the policy, private sector, and farmers' agendas (WP4 and WP3). The ALLs were aligned to the demand for co-development of agroecological innovations and knowledge, while increasing the capacity of various stakeholders (policymakers, private sector, and farmers) (in WP1), i.e., the transdisciplinary processes essential to the principles of agroecology, which will occur over the course of the Initiative. Feedback pertained largely to business aspects (including markets), mechanisms for

co-development, and synergies with other Initiatives. A WP focused on understanding and influencing agency and behavior change was seen as integral to enabling agroecological transition at food systems level. All these aspects are reflected in the WP-and Initiative-level theories of change (TOCs).

2.7 Projection of benefits

The projections below transparently estimate reasonable orders of magnitude for impacts which could arise as a result of the impact pathways set out in the Initiative's theories of change. Initiatives contribute to these impact pathways, along with other partners and stakeholders.

For each Impact Area, projections consider breadth (numbers reached), depth (expected intensity of effect per unit) and probability (a qualitative judgement reflecting the overall degree of certainty or uncertainty that the impact pathway will lead to the projected order of magnitude of impact).

Projections will be updated during delivery to help inform iterative, evidence-driven, dynamic management by Initiatives as they maximize their potential contribution to impact. Projected benefits are not delivery targets, as impact lies beyond CGIAR's sphere of control or influence.

For this exercise, the Initiative's focal points selected impact indicators that they considered most relevant in each agroecological living lab's (ALL) context, from an indicator shortlist that the IDT preliminary produced from the full list of CGIAR's PRMF ([Annex 5](#)). Our approach is conservative in that it assumes that (i) agroecological practices will be co-designed for specific indicative crops that were selected for their current livelihood significance in the prioritized sites within each country (i.e., one crop per country in most cases); (ii) agroecological innovations will directly benefit current indicative-crop smallholder households in the priority sites, and indirectly benefit similar households under comparable agroecological conditions in other parts of the selected countries; and (iii) other food chain actors (e.g., consumers, value chain intermediaries, etc.) who will benefit from the agroecological innovations, e.g., through inclusive business models and institutional innovations are not accounted for in these projections.

Nutrition, health & food security | Poverty reduction, livelihoods & jobs

Assessing Breadth: Our projections for these two Impact Areas account for the potential benefits for indicative-crop producing households that adopt AE-I innovations, and by extension all their constituent members. We projected the annual population of the indicative-crop growing communities by applying growth rates derived from UN rural population prospects to their most recently reported population sizes (See [all calculations](#) and [summary of calculation parameters](#)). Conservatively, we project that by 2030, the AE-I will benefit the following numbers of adopters of agroecological innovations: (i) 2,289,172 HH members in the AE-I prioritized sites (i.e., direct beneficiaries), and (ii) 6,121,868 HH members who adopt AE-I technological innovations beyond the ALL boundaries as the accompanying institutional innovations facilitate a broader uptake (i.e., indirect beneficiaries under similar agroecological conditions as those of the ALLs. These 8,411,041 aggregated people are distributed by impact depth categories in the table below. Using the World Bank's latest figures on poverty for each country (i.e., people living with incomes below USD\$1.90 per day, at 2011 PPP levels),²⁰ we estimate 2,532,334 poor people benefiting from relevant CGIAR innovations among the agroecological innovation adopters in each country's indicative-crop producer population.

Assessing Depth: For each country and indicative crop, we assessed the potential net farm income increases that may be realized through the adoption of AE-I technological innovations, using as proxies the productivity and income increases that have been reported in the literature for smallholders adopting best management practices (e.g., conservation agriculture and

agroforestry) in similar contexts. In the absence of such evidence, we obtained these figures from local experts through our scientific focal points in each site (see [sources of information](#)). Income increases due to institutional innovations, e.g., through inclusive business models, were not considered in this conservative projection. Indicative-crop producer populations with the potential of permanently increasing their farm incomes by at least 50% were assigned to the substantial impact category, whilst those with potential income increases below 50% were assigned to the significant impact depth category. No potential permanent income increases were reported below 15%, so none were assigned to the perceptible impact category. These depth categories were assigned to the projected populations across the indicators that account for impacts through permanently improved incomes (i.e., Nutrition, health & food security; Poverty reduction, livelihoods & jobs; and Youth).

Gender equality, youth & social inclusion

Assessing Breadth: We used UN annual prospects for each country's female and young populations²¹ to estimate the share of women and youth (i.e., between the ages of 15 and 24) in indicative-crop producing households that will gain benefits through the adoption of AE-I agroecological innovations.

Assessing Depth: Being consistent with the assumption that all members of HHs adopting AE-I innovations will benefit from improved productivity and net farm incomes, each country's breadth of youth benefiting from CGIAR innovations was assigned to a depth category in accordance with the impact categories assigned above. On the other hand, all projected women benefiting from relevant CGIAR innovations were consistently assigned to the substantial impact depth category, which is conservative considering that the agroecological principles of fairness, social inclusion and the empowerment of women and men are at the core of AE-I's co-creation and innovation processes.

Environmental health & biodiversity

Assessing Breadth: We applied conservative adoption and agricultural land conversion rates (see [calculation parameters and sources of information](#)) to obtain a lower-bound estimate of the number of indicative-crop hectares that will be improved through the co-created agroecological innovations (i.e., #ha under improved management) in the ALLs and, under similar agroecological conditions, in the rest of the country (or state in the case India's Andhra Pradesh and West Godavari). This #ha under improved management is the base for the projection of AE-I's contribution to reduced #km³ consumptive water use and to #ha of restored forest, as they were multiplied with the relevant potential per-hectare contributions of proxy best management practices (obtained from the literature or from local experts; find proxy BMPs [here](#)). Notwithstanding the potential for AE-I contributions to reduce freshwater use, we only obtained reliable numbers with which to project impacts with confidence for West Godavari and Tunisia. The same is true for AE-I contributions to forest restoration, which could only be projected with confidence for Burkina Faso and Peru. To project #ha of averted deforestation, we assumed that the 0.3% annual deforestation rate observed in Peru²² could be completely reversed through zero-deforestation commitments with AE-I participating smallholders in Ucayali, who on average manage 4 ha of forest. Among the benefits we did not project, we also anticipate AE-I contributions to significant biodiversity conservation through the smallholder farming communities in savannah ecosystems of Mbire, Zimbabwe (Mid Zambezi Valley, which is home to about 2,000 elephants and the African wild dog, among other endangered species), where this objective cannot be achieved through forest restoration/deforestation avoided.

Assessing Depth: The BMP chosen by local experts as proxies for the AE-I technological innovations that will be co-created in each ALL can be classified either under conservation agriculture, agroforestry, or in the case of Lao PDR, under a combination of the latter two with

organic farming. These technological packages are known to improve soil health and fertility, above and below ground biodiversity and to provide additional ecosystem services (including aesthetic and cultural),²³ This is especially true when considering that the current agricultural landscapes in the ALLs mostly consist of homogeneous cropping, or to a larger extent, monocultures that are managed with conventional practices that degrade soils and the surrounding environment. We have nevertheless conservatively assigned the substantial impact category to every hectare projected to be improved with contributions of AE-I innovations.

Climate adaptation & mitigation

The AE-I anticipates climate mitigation and adaptation benefits. We have only projected its contribution to reduced GHG emissions through the soil organic carbon (SOC) sequestration potential of the indicative crops in each ALL and in the rest of the country where they are currently cultivated under similar agroecological conditions. To project avoided #tonnes of CO₂ eq emissions, we multiplied the #ha under improved management with potential per-hectare contributions of proxy best management practices to SOC sequestration obtained from the literature and validated with scientific focal points (see [calculation parameters](#)).

Assessing probability

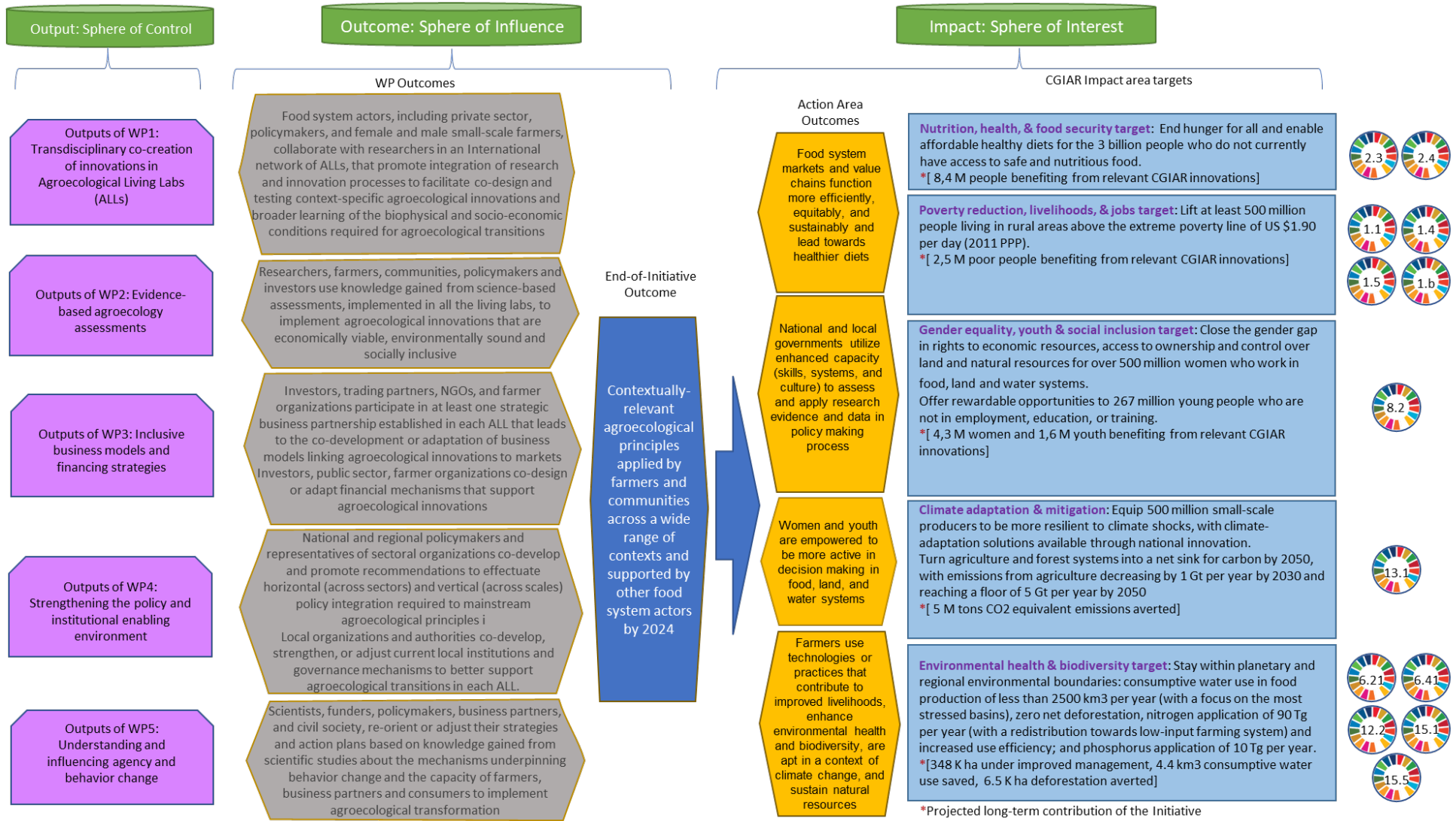
AE-I's projection of benefits was carried out with the support of scientific focal points and experts of the prioritized ALL sites, who completed [structured templates](#) with specific data for the establishment of ALLs in each prioritized site. This process also helped define each site's indicative crop and the technological packages that served as proxies for the plausible AE-I innovations that would be co-created in the ALLs. This systematic data-gathering approach and the subsequent validation with focal points of this exercise's results justify our confidence in the benefits we are projecting for the AE-I in each country. We have assigned medium certainty to all our projections to be consistent with our conservative approach to this exercise.

Breadth	Depth	Probability
(Nutrition, health & food security): 8,400,000 people benefiting from relevant CGIAR innovations	We expect around 4.3m people to experience a significant impact, with permanent increases in income of between 15% and 50% We expect around 4.1m people to experience a substantial impact, with permanent increases in income of >50%	Medium (30% - 50%)
(Poverty reduction, livelihoods & jobs) 2,532,334 poor people benefiting from relevant CGIAR innovations	We expect around 1m people to experience a significant income impact and around 1,500,000 to experience a substantial income impact	Medium (30% - 50%)
(Gender equality, youth & social inclusion): 4,395,862 women benefiting from relevant CGIAR innovations	We expect around 4.3m women to experience a substantial impact	Medium (30% - 50%)
(Gender equality, youth & social inclusion): 1,665,739 youth benefiting from relevant CGIAR innovations	We expect around 800,000 to experience a significant income impact, and around 870,000 to experience a substantial impact	Medium (30% - 50%)
(Climate adaptation & mitigation): 5,100,251.67 tonnes CO ₂ equivalent emissions averted	n/a	Medium (30% - 50%)
(Environmental health & biodiversity): 348,361ha under improved management	Substantial: we expect improved management to deliver at least two of the following three benefits across the areas of intervention: improvements in soil health and fertility, delivers biodiversity gains, and provides additional ecosystem service improvements	Medium (30% - 50%)

<p>(Environmental health & biodiversity): 4.44 km³ consumptive water use</p>	<p>Largely transformative: reducing water use in areas where agriculture takes more than 50% of total renewable freshwater.</p>	<p>Medium (30% - 50%)</p>
<p>(Environmental health & biodiversity): 6,496.74 ha deforestation averted</p>	<p>Largely substantial: we expect deforestation to be averted, or forest restoration, in areas with high forest biodiversity significance but lower forest biodiversity intactness.</p>	<p>Medium (30% - 50%)</p>

3. Research plans and associated theories of change (TOC)

3.1 Full Initiative TOC



3.1.2 Full Initiative TOC narrative

Our **theory of change** is that agroecology can only fulfil its potential as a contributor to sustainable FLW systems if science and innovation provide evidence on the extent to which (1) agroecological principles and innovations, in different socio-ecological systems, are more effective at delivering the full range of social equity, agricultural productivity, economic benefits, and environmental protection benefits to farmers and FSAs than the status quo, and (2) agroecological transitions taking place at territorial system level can be efficiently scaled out and adapted to other LMIC contexts in the 2024-2030 cycle to reach a critical mass capable of triggering broad FLW systems transformation.

AE-I is designed around a set of five Work Packages based on application of agroecological principles to different components of the food system (food production, business models, policies, and local institutions), harnessing nature's goods and services whilst minimizing adverse environmental impacts, and improving knowledge co-creation and inclusive relationships among FSAs¹. The network of ALLs is the vehicle through which we learn which agroecological innovations work, for whom and where, generating a replicable, generically applicable agroecology model (2022-2024) that acts as a 'blueprint' for scaling territorial agroecological transitions to trigger FLW-scale agroecological system transformation (2024-2030).

Through the **WP change pathways** — (WP1) Transdisciplinary co-creation of innovations in Agroecological Living Labs (ALLs), (WP2) Evidence-based agroecology assessments, (WP3) Inclusive business models and financing strategies, (WP4) Strengthening the policy- and institutional-enabling environment, and (WP5) Understanding and influencing agency and behavior change — AE-I anticipates achieving the **WP outcomes** listed in [Section 2.2](#), which, when taken cumulatively, will facilitate achievement of the **End-of-Initiative outcome** of *Contextually relevant agroecological principles applied by farmers and communities across a wide range of contexts and supported by other food system actors by 2024*.

The TOC is underpinned by the **assumptions** (A) that: (A1) key FSAs (farmers, business partners, policymakers) in target territories remain committed to their expressed desire to engage actively in co-development processes that blend science and local knowledge; (A2) the co-creation process will generate context-relevant agroecological innovations that are more likely to be adopted, scaled, and sustained in the long term, contributing to improved productivity, environmental outcomes, and social inclusion in targeted territories over time; (A3) key scaling partners (business partners, policymakers, investors) will actively engage in the scaling of agroecological innovations; (A4) increasing the equity and agency of women and youth in the co-design process will generate a multiplier effect on the impact pathways of both scaling up (policy integration) and scaling out (public-private partnerships and new business models); and (A5) AE-I scientific evidence influences behavioral change and decision-making across a range of FSAs, ensuring broad-based support for and implementation of effective agroecological innovations in targeted territorial food systems and beyond.

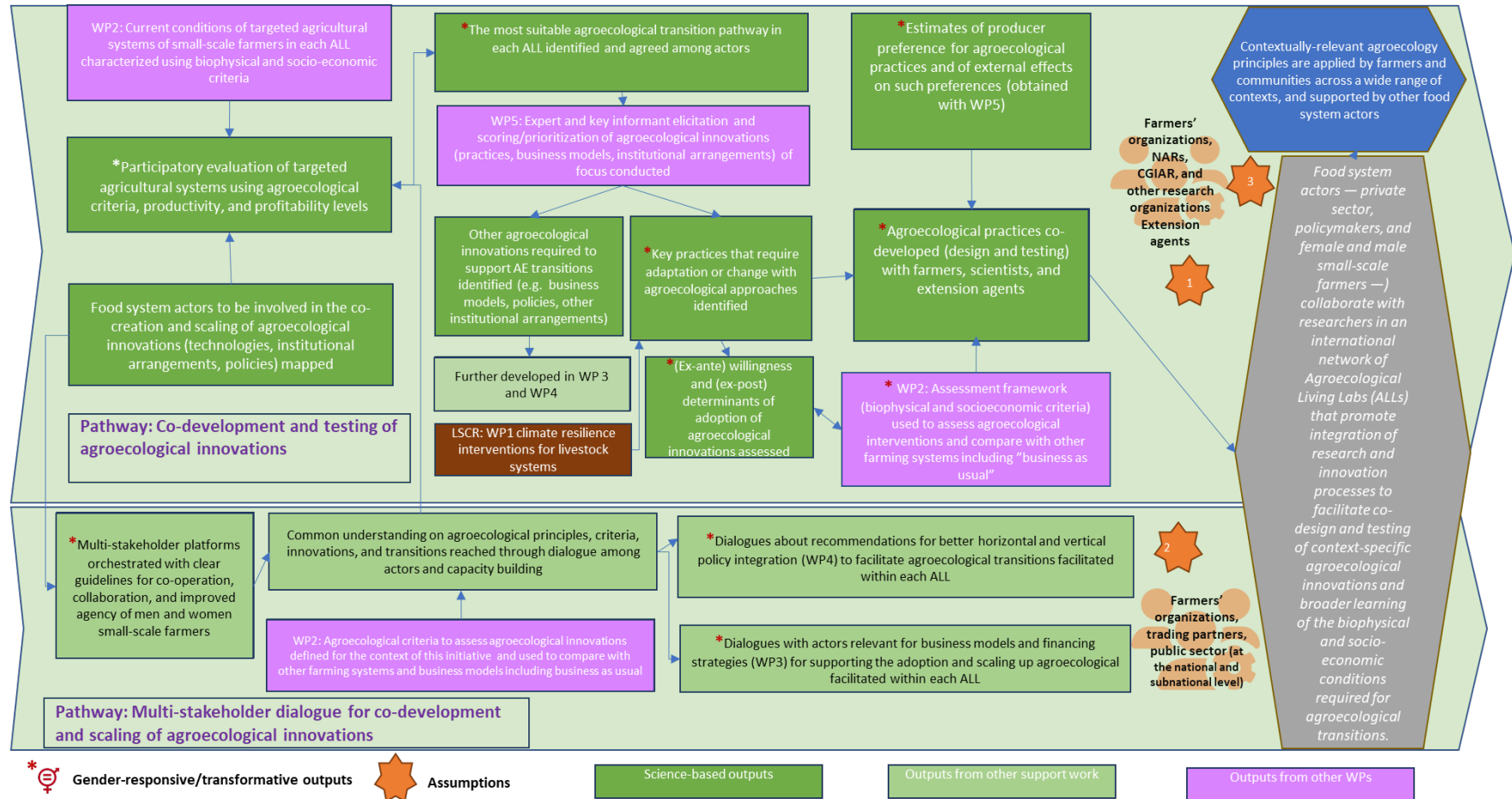
If these assumptions hold true, by 2030, it is reasonable to expect changes achieved in the 2022-2024 cycle to influence longer-term positive change by 2030, encapsulated in the One CGIAR **Impact statements** (Section 5) by 2030, the **System Transformation Outcome** (STO), and **SDGs** targeted by AE-I (see Results Framework, [Section 6.1](#)).

Key scaling and demand partners include TPP, Biovision, private-sector companies, national and sub-national governments, and targeted GIZ-led programs (i.e., ProSoil, the Knowledge Center

for Organic Agriculture in Africa (KCOA), Supporting Agroecological Transformations in India (SuATI), the Biodiversity and Ecosystem Services in Agricultural Landscapes project, and the Kenyan Intersectoral Forum on Agrobiodiversity and Agroecology [ISFAA]).

3.2 Work Package TOCs

3.2.1 Work Package 1



Work Package 1 research plans and TOCs

Work Package title	Transdisciplinary co-creation of innovations in Agroecological Living Labs (ALLs)
Work Package main focus and prioritization	WP1 establishes a network of multi-actor environments (Agroecological Living Labs). Each ALL will facilitate interactions among FSAs, bringing together small-scale farmers (across gender, generation, and ethnicity) with researchers and others (i.e., extension services, NGOs, private sector, policymakers, funders and investors) in specific territories. Together, they will equitably co-design context-specific agroecological innovations — technologies (WP1), institutional arrangements (WP4), business models (WP3) — combining science-based learning with local knowledge and creating the social conditions that favor AE transition. ALLs will be located in seven LMICs selected for their diversity of agroecosystems and ecological and institutional features. WP1 will connect with other FSAs and scaling partners to develop business models and financing strategies (WP3) and enabling policy conditions (WP4), as well as promote behavioral change (WP5) to support the out-scaling of innovations incubated in the ALLs.
Work Package geographic scope	Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe

WP1 science narrative

Key research questions

- To what extent are current small-scale farming operations agroecological, based on specific agroecological criteria (provided by WP2)?
- What practices in the targeted agricultural systems require modification to facilitate their entry into an agroecological transition pathway?
- What are the “best bet” agroecological practices preferred by women and men farmers?
- How do these agroecological innovations perform (across agroecological indicators prioritized by the actors involved, from productivity to social equity and nature-positive gains) and affect targeted territorial food systems (with WP2) and how should they be adapted?
- What are the barriers, drivers (including preferences), and opportunities for farmers to adopt agroecological innovations vs. conventional agricultural food system innovations?
- Who are the key value chain and FSAs in each ALL relevant to supporting agroecological innovations? How can these FSAs support agroecological transitions and with what other agroecological innovations (business models, institutional arrangements, etc. to be developed in WP3 and WP4) (with WP5)?

Main proposed scientific methods

- Participatory evaluation of agroecology criteria for current and new practices (with WP2) to determine how agroecologically-sound these practices are. Adaptation of existing assessment tools like the ACT-tool, and implementation via focus groups and interviews.

- Participatory co-design of agroecological practices^{24,25} or systems (depending on the AE transition pathway) for small-scale farms,²⁶ blending scientific and local knowledge.
- Participatory evaluation of agroecological practices in ALLs based on assessments from WP2 focusing on early changes, complemented with projection of changes to soil health, water-related ecosystem services, biodiversity, profitability, productivity, and social inclusion.
- Depending on the context (or the stage of agroecological transitions in each site): (i) assess likelihood of adoption of agroecological practices and engagement in agroecological transition, complemented with Discrete choice experiments (DCEs) to elicit the preferences of producers for various co-designed agroecological practices; or (ii) conduct adoption studies for existing agroecological innovations, including contextual factors related to adoption/non-adoption decisions.
- Stakeholder mapping in each targeted territorial food system (informing WPs 3–5).
- Participatory identification of potential technical or institutional lockouts that, if changed, can lead to agroecological transition.

Key outputs

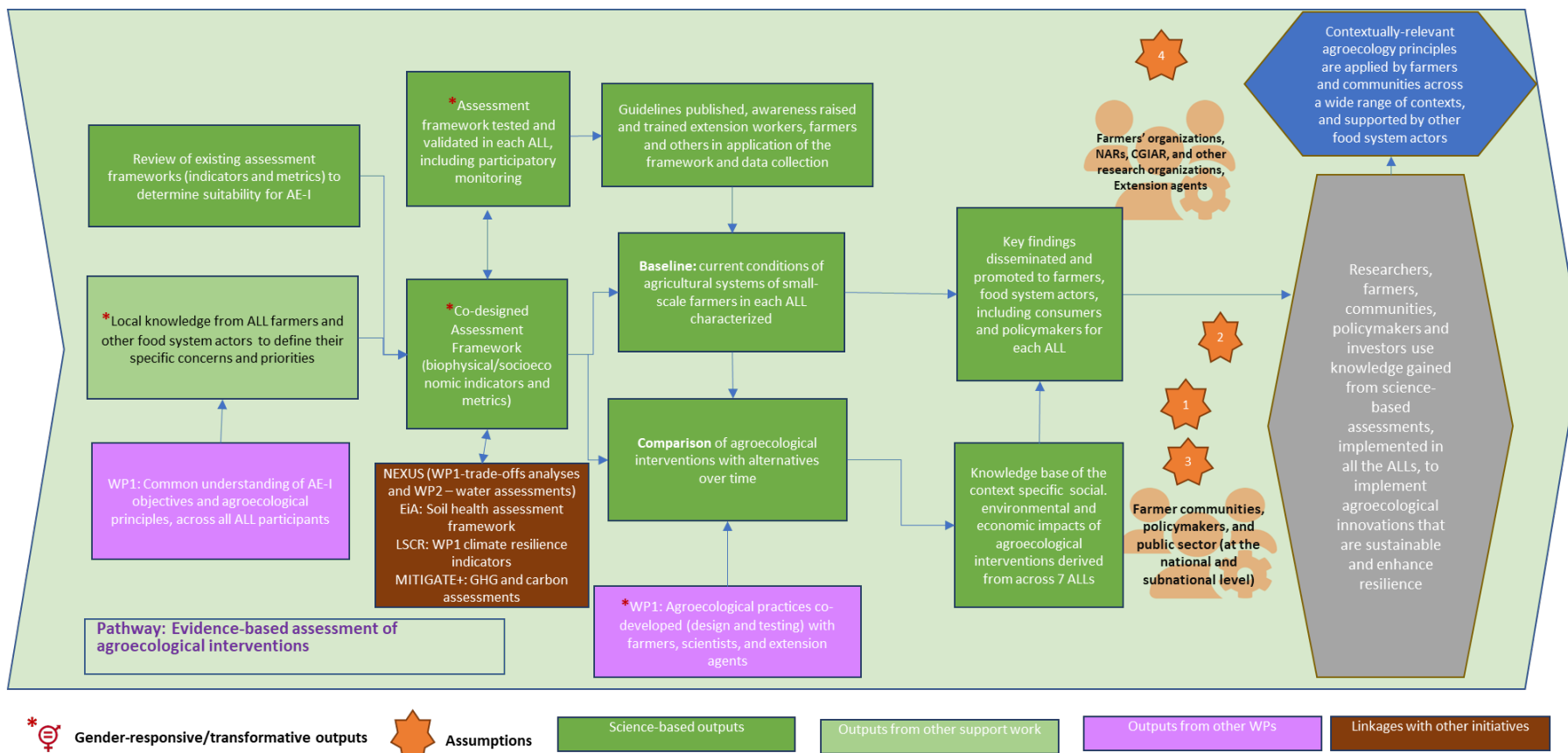
- Current conditions of targeted agricultural systems driving the targeted territorial food system evaluated with farmers based on previous characterization of these systems (by WP2) along different agroecological criteria, productivity, inputs use, and profitability and risk/debt.
- The most suitable agroecological transition pathways in each ALL identified and agreed among actors as a common future vision.
- Key agricultural practices that require adaptation to agroecological approaches identified.
- Agroecological innovations for agricultural systems (practices) co-designed with farmers, scientists, and extension agents.
- Other agroecological innovations (business models, institutional arrangements) at the food system level required to support implementation of agroecological practices in the targeted territorial food systems co-identified with the private sector, NGOs, farmers, communities, among others (to be further developed under WP3 and WP4).
- Early and projected benefits of agroecological practices for productivity, ecosystem services (water-related, soil-mediated), biodiversity, and contribution to dietary diversity, profitability and risk, social inclusion, and farmers' agency evaluated.
- Willingness to adopt new agroecological practices assessed; or determinants of adoption of existing agroecological practices understood.
- Evidence on producer preferences for individual practices and of idiosyncratic and external effects on such preferences obtained.

WP1 theory of change narrative

FAO (2018)²⁷ and HLPE (2019)¹ emphasize the importance of co-creation to agroecological system transformation, but recent research²⁸ highlights a gap on what we know about how agroecology compares against alternatives in LMICs. Impact Pathway 1 (IP1) posits that, by bringing together male and female small-scale farmers, researchers, and other FSAs (NGOs, NARES, local authorities, producer organizations, consumers) in ALLs, the agroecological transition pathways that emerge will be: (a) highly relevant to the biophysical, sociological, and

institutional context of each LMIC, (b) responsive to the needs of small-scale farmers in LMICs, and (c) transdisciplinary in nature, thus enabling sustained adoption of agroecology and eventual scaling. By blending science and local knowledge, FSAs and researchers will develop evidence of which system- and actor-level changes and what agroecological innovations (technologies, business models, and institutional arrangements) are required to trigger agroecological transitions. Actors will co-develop agroecological innovations at the farm level (WP1) and at food system level (WPs 3 and 4), generating evidence on how agroecology compares to current practices and BAU scenarios (with WP2), and which agroecological innovations are preferred by the different FSAs (with WP5), resulting in agroecological innovations more likely to be adopted broadly, leading to the WP1 Outcome (FSAs —private sector, policymakers, and female and male small-scale farmers — collaborate with researchers in an international network of Agroecological Living Labs (ALLs) that promote integration of research and innovation processes to facilitate co-design and testing of context-specific agroecological innovations and broader learning of the biophysical and socio-economic conditions required for agroecological transitions.) IP2 describes the causal relationships that exert influence on how successfully the agroecological innovations co-designed in IP1 are scaled out and sustained. Our premise is that by establishing multi-stakeholder dialogs in ALLs for (a) strengthening the agency of women and youth to participate equitably in the design of agroecological innovations, (b) creating a common understanding of agroecology, (c) planning horizontal and vertical policy integration (WP4), (d) preparing business models and financing strategies (WP3), and (e) using (WP2) criteria to assess agroecological innovations (Outputs), in conjunction with the IPs of WP3 and WP4, we will create an enabling environment for scaling agroecological innovations. The TOC is underpinned by assumptions that (A1) a co-creation process with farmers that blends science and local knowledge will generate context-specific, locally-relevant, and farmer-preferred agroecological innovations more likely to be adopted and sustained in the long term, (A2) increasing the equity and agency of women and youth in the co-design process will have a multiplier effect on the impact pathways of both scaling up (policy integration) and scaling out (public-private partnerships, new business models), and (A3) key FSAs (farmers, business partners, policymakers) in the seven LMICs are interested and willing to actively engage in agroecological innovation. The risks underpinning this TOC and all other WP-TOCs are listed under the Risk Assessment, [Section 7.3](#).

3.2.2 Work Package 2



Work Package 2 research plans and TOCs

Work Package title	WP2: Evidence-based agroecology assessments
Work Package main focus and prioritization (max 100 words)	By (i) adapting indicator and metrics frameworks for use in socioecological systems incorporating agroecology in LMICs, and (ii) assessing agroecological interventions in ALLs across all scales from field to territorial food systems, WP2 tackles the question: What works, where and why for farmers and other FSAs (business partners, policymakers)? WP2 agricultural and food system metrics will capture multi-dimensional outcomes of agroecological innovations from productivity, profits, and risks to the impact on human and environmental health. Using a socioecological systems framework (SESF) approach, WP2 analyzes and assesses the efficacy of agroecological innovations to deliver positive effects on natural and human systems across a wide range of socioecological contexts, ultimately generating the evidence base on the efficacy of agroecological approaches to provide sustainable, resilient, and inclusive livelihoods and food systems.
Work Package geographic scope (global/region/country)	Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe

WP2 science narrative

Key research questions

- How can all significant human and environmental health, social and economic impacts of agroecosystem and food systems be factored into tractable performance metrics that facilitate the evaluation of agroecological approaches in relation to alternatives?
- How can farmer and food system actor characteristics (including gender, age, and wealth differences) be combined with objective measures to generate evidence on holistic performance of agroecological innovations (technological and institutional) across contexts?
- What is the current condition of small-scale farming in each of the targeted territories in terms of productivity, input use, profitability, risk/debt indicators, ecosystem services, social inclusion, dietary diversity, and farmers' agency?
- How do agroecological innovations (agricultural practices, business models, and institutional arrangements) compared to BAU scenarios in targeted territories, from social (social inclusion and farmers' agency), to economic (profitability, risk/debt, input use) and environmental perspectives (ecosystem services, carbon and water footprints, and biodiversity)?

Main proposed scientific methods

- Review and compile applied environmental, social, and economic indicators and metrics (e.g., TEEB, Global Footprint, TAPE-FAO, BioVision ACT, IFAD-AE, natural capital accounting, etc.) to assess change prompted by the application of agroecological innovations in agroecosystems and food systems. This will include compatibility with, and expansion of, metrics used in the EU-INTPA Transitions project.
- Evaluate farmer and other FSAs' priorities in ALLs (in cooperation with WP1) as input for the development of a holistic performance framework, comprising tools (e.g., models, field methods, and participatory monitoring) for application at different scales (farm, landscape, territorial food system) and for assessing different types of agroecological innovations (practices, business models, institutional innovations).

- Test, validate, and apply the framework across seven ALLs (and beyond), with common components, but also with specific indicators to reflect local priorities and interests.

Key outputs

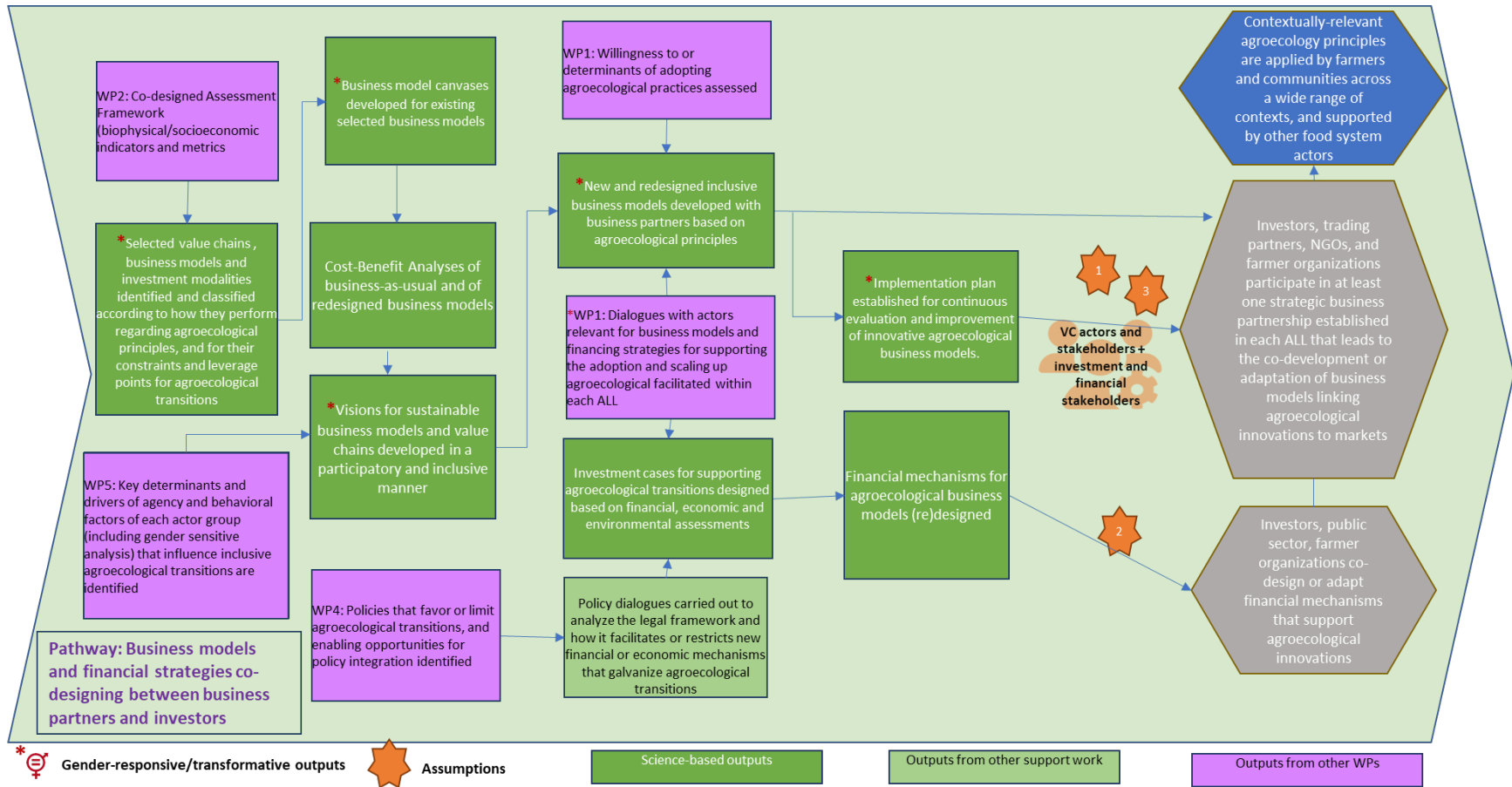
- Current conditions of targeted agricultural systems of small-scale farmers in each ALL characterized using environmental and socio-economic criteria.
- Knowledge base of the contributions of agroecological innovations to the application of agroecological principles across seven ALLs and context-specific contributions to social, economic, and environmental indicators assessed for baseline.
- Handbook on assessment framework for agroecological innovations applied in agroecosystems and food systems. This framework will include environmental, social, and economic metrics.
- Financial metrics that capture inventories of relevant practices and mechanisms for uptake of and investment in agroecological approaches (to inform WP3).
- Knowledge base informing the AE-I monitoring, evaluation, learning and impact assessment (MELIA) plan
- Lessons learned seminars for extension workers and multi-stakeholder platforms (WP1) to create awareness.

WP2 theory of change narrative

Due to the complex interactions at play in agricultural and food systems i.e., between human (economics, governance, markets, agriculture, and policy) and natural systems (biodiversity, soil, land, and water) and the comprehensive set of agroecological principles, an equally complex, whole-of-system metrics framework is needed to identify what works, where and why. The social-ecological systems framework (SESF)²⁹ is the most comprehensive conceptual framework for diagnosing interactions and outcomes in social-ecological systems. A key benefit is the framework's malleability, which can be easily adapted to include variables and metrics, aligned to the agroecological principles, that will allow us to capture and measure — for the first time in the LMIC context — the full complexity of the multiple outcomes and tradeoffs arising from adoption of agroecological innovations, including: productivity, profits, health, food security and nutrition, social inclusion, resilience, climate change mitigation, and impacts on land, soil, water security, and biodiversity. The **Impact pathway** for WP2 consists of (I) the building of the assessment framework tool, and (II) application of the assessment framework at all scales (from field and livelihoods to landscape and food system) across all seven ALLs and to selected 'use cases' in other Initiatives (e.g., EiA, LSCR, Nexus Gains, MITIGATE+, Foresight and metrics, and some regional Initiatives). For (I) WP2 will co-develop the assessment framework with women and men farmers, youth, NGOs, and other FSAa, encompassing a set of **Outputs** ranging from literature review and framework validation to building the FSAs' capacity to apply the framework and a handbook, supported by evidence on FSAs' and farmers' priorities and consensus on critical agroecological principles and criteria to be used (WP1). An enabling factor external to the Initiative will be incorporation of local knowledge from ALL farmers and other FSAs into the framework, as only a framework that measures for variables important to the sometimes very diverse interests, needs, and drivers for men, women, and youth can accurately say whether the agroecological innovation is effective or not. For (II), by applying the assessment framework across diverse agroecological (and other) interventions, socio-ecological contexts and food system types, evidence on how site-specific variables affect the suitability of different innovations will be revealed, thus directly

steering researchers, farmers, communities, policymakers, and investors towards agroecological options that are sustainable and enhance resilience (**Outcome**). This will be applied to a set of ready-to-assess agroecological interventions from ALLs (WP1) and informed by dialogs on private sector out-scaling pathways (WP3) and vertical and horizontal policy integration (WP4). **Assumptions** underpinning this TOC are that (A1) creating an entirely new framework is unnecessary given the existence of the SESF, but that the innovation of adapting the tool to incorporate a broader range of indicators to evaluate the current status and trends in agroecology against BAU scenarios, key socio-economic factors (that may vary in relative importance for female and male FSAs), and environmental and economic tradeoffs, is necessary; (A2) all stakeholders have a sufficient understanding of the differences between AE and non-AE practices; (A3) FSAs (farmers, business partners, policymakers) are interested in understanding the objectives of the assessment framework and in acting on the findings (enabled with and through other WPs (i.e., with business partners in WP3, with policymakers in WP4, with farmers in WP1); and (A4) after the Initiative ends, the assessment framework continues to be used to generate knowledge that informs decision-making by farmers, policymakers and other FSAs, ensuring continued uptake of agroecological innovations.

3.2.3 Work Package 3



Work Package 3 research plans and TOCs

Work Package title	WP3: Inclusive business models and financing strategies
Work Package main focus and prioritization	WP3 ensures that low-income rural communities can equitably capitalize on new or existing business opportunities arising from agroecological transitions in agricultural and food systems. WP3 will broker new, or facilitate enhancement of, existing producer-market linkages and support development of innovative financial mechanisms, thereby unlocking key bottlenecks to inclusive, profitable business models that embrace agroecological principles (such as circularity, inclusivity, and solidarity). It will work with trading partners and public and private investors to incorporate the evidence and co-design agroecological innovations emerging from ALLs (WP1) and performance metrics (WP2) into innovative business models, and financing strategies, ultimately enabling access to markets and financial resources — including carbon markets, payment for ecosystem services, climate finance, impact investment, etc. It is particularly important to close a potential financial gap during the initial stages of agroecological transitions and to support the incremental changes required to keep advancing agroecological transition.
Work Package geographic scope (global/region/country)	Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe

WP3 science narrative

Key research questions

- What is the contribution of current business models, markets, and investment modalities in the targeted territorial food systems to agroecological principles, including fair employment and income opportunities for women, youth, and vulnerable community members, and local governance of resources? Which agroecological principles are being applied (and how) in current business models and investment modalities, and to what extent are they demanded by different market segments?
- Which design principles for new or improved business models could promote increased adoption of agroecological practices along the value chain?
- What are the costs and benefits of the proposed agroecological transitions, how profitable are they, how much risk do they pose for farmers compared with the BAU scenario, and which financial instruments or economic incentives support their implementation?
- How do new or reconfigured business models contribute to improvement of context-specific social, economic, and environmental indicators compared to the baseline (WP2)?
- What investment cases facilitate agroecological transitions across different value chains and ALLs? What new financial strategies support these investment cases?

Main proposed scientific methods

- Value chain analyzes using e.g., TEEB Agri Food evaluation and the LINK methodology (adapted to capture agroecological principles, beyond social inclusion).
- Cost-benefit analyses (CBAs) and financial assessment of current business models in selected territorial food systems, and for proposed agroecological transitions.
- Co-design or co-adjustment of new or existing business models among trading partners incorporating agroecological principles.

- Application of prototype cycles approaches for continuous improvement of co-designed agroecological business models.
- Financial analyzes to identify the most appropriate investment case to support and scale the agroecological practices that form part of new business model arrangements.
- Analysis of the effect of financial instruments and/or economic incentives on the adoption of practices and measures.
- In the case of new agroecological products without linkages to markets, DCEs applied to estimate consumer willingness to pay for products or services in their development phase. This can help predict demand and help to make necessary adjustments before bringing them to the market. These results will feed behavioral change strategies (in WP5).
- Application of the holistic performance framework (developed by WP2) for assessing agroecological business models (together with WP2)

Key outputs

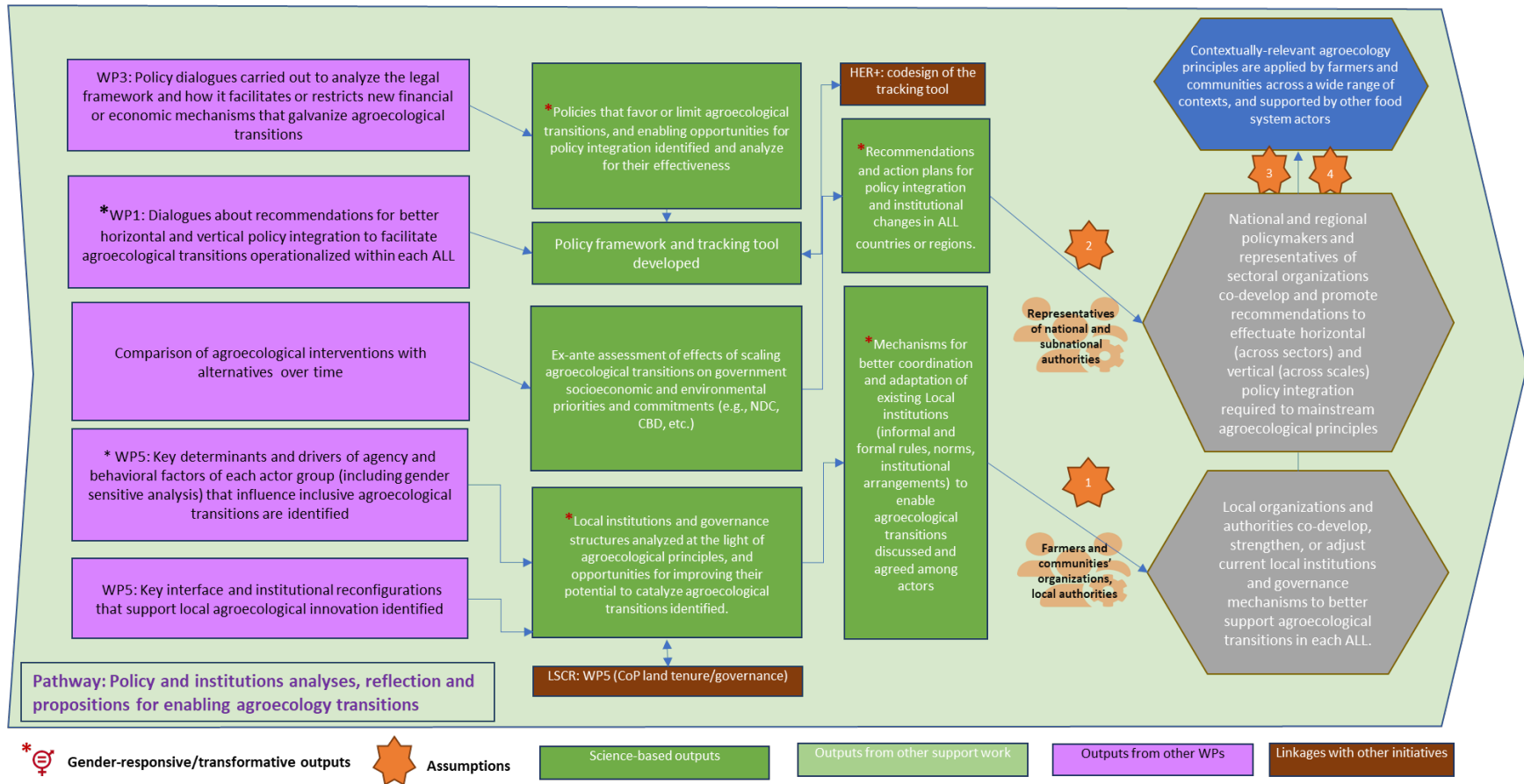
- Value chain maps and analyses that identify the current structure and dynamics, as well as constraints and opportunities for aligning different services (including financial services) and actors' functions along the value chain business models involved in agroecological transitions.
- Current business models and financial modalities classified according to how they perform on agroecological principles (e.g., according to the Agroecology Criteria Tool), social equity, and economic viability.
- Business model canvases developed for selected existing business models, including identification of challenges and opportunities for the trading partners.
- CBAs that capture the profitability of innovative business models (i.e., applying agroecological principles) with that of current (conventional) business models carried out, for short- and long-term periods.
- New or redesigned business models co-developed under agroecological principles such that, in their application, they increase the inclusion of women, youth, and disadvantaged members of society, and empower producers and producer groups to participate more effectively in markets by establishing more-inclusive producer-buyer links. Each business model will have an implementation plan established for continuous evaluation and improvement of innovative agroecological business models.
- Investment cases to inform dialogs with interested private and public investors in supporting the co-designed business models, including financial returns, economic performance, and non-monetary benefits (WP2).
- Financial mechanisms for agroecological business models adapted, improved, and/or co-designed.

WP3 theory of change narrative

The ability of female and male small-scale producers, enterprises, and FSAs to partake equitably in and benefit economically from new business opportunities arising from the adoption of agroecology will be increased by (a) mapping evidence on the constraints and leverage points in current business models and broader value chains that block or facilitate agroecological transitions, (b) discovering what value chain actors and stakeholders can do differently to incentivize and scale agroecological transitions, (c) identifying complementary

financial mechanisms and economic incentives to overcome bottlenecks to farmers and other FSAs (across gender, generation, and ethnicity) participating in agroecological transitions, (d) implementing continuous innovation cycles for co-designed business models to better support agroecological transitions in the ALLs, and (e) monitoring the economic, social, and environmental performance of co-designed business models and financial strategies compared to BAU scenarios (by WP2). This, in turn, is expected to lead to the **WP outcome 1** of Investors, private sector, NGOs and farmers participating equitably in partnerships to co-develop business models, and linking agroecological innovations to markets and investment, and **WP outcome 2** of Investors, public sector, and farmer organizations co-designing or adapting financial mechanisms that support agroecological innovations. The **causal relationships** linking an increase in business model adaptation skills and access to new financing modalities for small-scale (female and male) food system entrepreneurs to the much broader scaling-out power represented by the larger-scale processors, end markets, and capital investors, will be supported by rigorous value chain and business model analyses, and the co-design of new business models, investment cases and financial strategies that value the financial and non-financial benefits of agroecological transitions. This will also be supported by (i) ex-post modelling of adoption determinants and data on ex-ante producer preferences for agroecological practices (WP1), (ii) agroecological assessment metrics (WP2), (iii) learning from participatory research into behavioral change drivers motivating, limiting or impeding adoption of agroecology by farmers, consumers, NGOs, scientists, and investors (WP5), and iv) policy dialogs to analyze the countries' legal frameworks and how they facilitate or restrict new financial or economic mechanisms underpinning agroecological transitions (WP4). The TOC is predicated on assumptions that: (A1) Private and public sector actors and stakeholders are willing to participate in participatory value chain and business models analyzes and commit to supporting agroecological business models in each ALL; (A2) trading partners are willing to develop relations based on trust, and cooperation and conflict resolution mechanisms are in place; and A3) ALLs become an effective multi-actor platform to forge a clear understanding of, and consensus on, the roles and responsibilities, as well as expectations, of business partners.

3.2.4 Work Package 4



Work Package 4 research plans and TOCs

Work Package title	WP4: Strengthening the policy- and institutional-enabling environment
Work Package main focus and prioritization	WP4 explores mechanisms to facilitate the policy integration (across sectors and scales) required to support agroecological transition. WP4 focuses on: (i) understanding how existing policies, local institutions, and governance structures impact agroecological transitions at agroecosystem and food system levels in different contexts; (ii) modeling the effects of scaling-out agroecology transitions (with WP2), linking these effects to government socio-economic and environmental priorities and commitments (such as the nationally determined contributions (NDCs) and national adaptation plans (NAPs)); and (iii) providing recommendations to overcome policy bottlenecks and facilitate conditions to accelerate the adoption and operationalization of agroecological transition.
Work Package geographic scope (global/region/country)	Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe

WP4 science narrative

Key research questions

- How do current cross-sectoral and multi-scale public policies constrain or enable agroecological transitions in targeted contexts and for different types of actors (e.g., farmers, buyers, service providers, consumers, etc.)? What agroecological principles are more mainstreamed than others? Which principles are currently less supported (policy gaps)?
- What local institutions and governance structures favor, limit or impede the application of agroecological principles in agroecosystems and food systems?
- What changes or adjustments to local institutional and governance arrangements are needed to support agroecological transitions, especially innovations co-created in WP1? How do these requirements vary across socio-economic and political contexts?
- What specific changes are needed in public policies to overcome bottlenecks to scaling agroecological transitions? What mechanisms can trigger the integration (across sectors and scales) required to support these transitions?
- What will be the impacts on socio-economic and environmental conditions of taking agroecological transitions to scale, and how will this facilitate government priorities and commitments?

Main proposed scientific methods

- Develop an agroecology policy tracking tool (with HER+); apply in ALLs; key informant interviews and focus groups with different actors to identify how these policies affect implementation of agroecological principles.
- Conduct a global policy impact assessment collating academic and grey literature documenting quantified and qualitative outcomes of policies implemented with the intention of increasing adoption of agricultural practices underpinned by agroecological principles.
- Learning and dialog processes for participatory analysis of local (formal and informal) institutions and governance structures (actors, rules and norms, effectiveness, and bottlenecks), and co-design of adjusted/new institutions to enable agroecological transitions.

- Ex-ante economic and environmental modeling of effects of implementing agroecological transitions at scale (jointly with WP2).
- Reflection workshops with ALL participants, policymakers, local institutions and governance actors to evaluate the performance of agroecological innovations in ALLs, and identify strategies to strengthen policies and institutions supporting agroecological transitions.

Key outputs

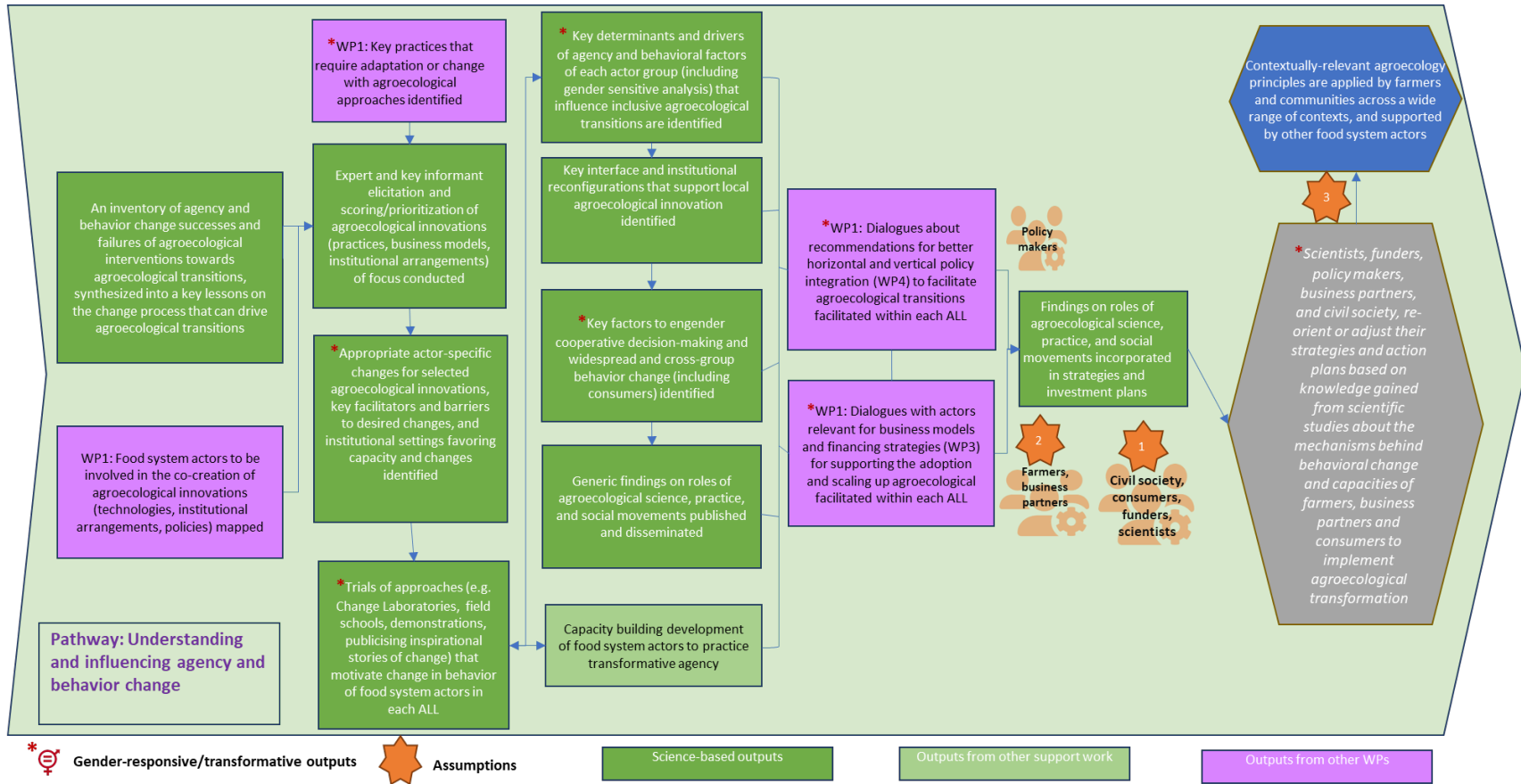
- Identified policies that favor, limit or impede agroecological transitions, as well as new opportunities for policy integration.
- Opportunities for improving the potential of local institutions and governance structures to catalyze agroecological transitions identified with FSAs in each ALL.
- Policy framework and tracking tool.
- Ex-ante assessment of the effects of scaling agroecological transitions on government socio-economic and environmental priorities and commitments (e.g., NDCs, CBD, etc.)
- Recommendations and action plans for policy and institutional changes in ALL countries or regions.
- Mechanisms for better coordination and adaptation of existing local institutions (informal and formal rules, norms, institutional arrangements) to enable agroecological transitions.

WP4 theory of change narrative

WP4's **Impact pathway** links the common starting point of a new policy framework and tracking tool (to be developed in collaboration with HER+), (**Output** with other **Outputs** (from WP4 and other WPs) to **two WP outcomes** subdivided according to their impact on two different user groups, namely national- and regional-level policy stakeholders (Outcome 1) and farmers, community organizations, and local authorities (Outcome 2). Towards **Outcome 1**, recommendations for better horizontal (across sectors) and vertical (across scales) policy integration to facilitate agroecological transitions (WP1) will be layered into the policy framework and tracking tool to help identify policies that favor, limit or impede agroecological transitions, especially those with the potential for removing key institutional or governance barriers to adoption of agroecological practices by women and youth. This will be supported by evidence from an ex-ante assessment of the effects of scaling agroecological transitions on government socio-economic and environmental priorities and commitments (e.g., NDC, CBD, etc.). Use of these **Outputs** by representatives of **national- and sub-national authorities** should result in the creation of context-specific recommendations and action plans for policy and institutional changes in ALL countries or regions, leading to **WP outcome 1: National and regional policymakers and sectoral organization representatives co-develop and promote recommendations to effectuate the horizontal(across-sectors) and vertical/(across-scales) policy integration required to mainstream agroecological principles.. WP outcome 2 Local organizations and authorities co-develop, strengthen, or adjust local institutions and governance mechanisms to better support agroecological transitions in each ALL** focuses on policy and institutional changes at local level. Using the framework and policy tool to analyze local institutions and governance structures for their level of mainstreaming of agroecological principles, farmer organizations, researchers, local authorities, and NARES will identify opportunities to enhance local governance and institutions (norms, rules, institutional arrangements) to accelerate agroecological transitions. This will be supported by data on the

type of financial or economic mechanisms that galvanize agroecological transition (WP3), consensus on agroecological principles (WP1) and criteria for monitoring, the enhanced equity and agency of women and youth (WP2) to participate in platforms such as the ALLs, and recommendations for policy and local institutions' integration from a territorial perspective. To translate this learning and evidence into action, reflection workshops, multistakeholder platforms, and other fora will facilitate communication and alignment across local governance actors that lead to identification and consensus around local institutions and governance mechanisms, to foster a positive enabling policy and governance environment for the upscaling of agroecological transition from local level, leading to **Outcome 2**. The TOC is underpinned by **assumptions** that: (A1) participatory analyses and reflection workshops will create among all actors a better understanding of and willingness to address the diverse sets of needs, aspirations, and constraints of men, women, and young people that must be better reflected in enabling governance and policy frameworks supporting desired agroecological transitions; (A2) combining analyses of the policy landscape, assessment of how effectively agroecological approaches are scaled and mainstreamed into national environmental and social commitments, and systematic dialogs with policymakers, is an effective way to identify viable options for removing policy bottlenecks to agroecology adoption; (A3) policymakers at national and subnational scales, and across various sectors, are motivated to participate actively in the co-development and promotion of policy integration recommendations that support agroecological approaches in food systems; and (A4) co-designed adjustments to the enabling environment will incentivize farmers and other FSAs to adopt, participate in, and scale agroecology more easily and more rapidly.

3.2.5 Work Package 5



Work Package 5 research plans and TOCs

Work Package title	WP5: Understanding and influencing agency and behavior change
Work Package main focus and prioritization	WP5 applies an iterative process to understand and then influence individual and collective agency and behavior among FSAs to drive inclusive and equitable agroecological transformation. The findings will feed into policy pathways (WP4) and be applied through piloting of institutional innovations in business models and financial modalities (WP3), in capacity building, and in participatory and adaptive interventions (WP1), with the aim of accelerating the pace of agroecological transition at scale. Simultaneously, it will enhance the agency of women and youth in decision-making processes pertaining to the transition to agroecology.
Work Package geographic scope (global/region/country)	Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe

WP5 science narrative

Key research questions

- For each actor group (producer organizations, value chain participants, consumers, researchers, rural advisory services, the private sector, policymakers, civil society), what are the behavior determinants/drivers that facilitate or impede the implementation of agroecological innovations?
- How can interfaces between actor groups be reconfigured to support agroecological innovations at scale?
- How do resource access (e.g., financial, technical, and knowledge), the various types of available evidence, actor relationships, interactions, and learning exchange influence the agency of farmers and other food system actors, including by gender, age, ethnicity, etc.? And how does this agency support agroecological transitions? (See [section 5.3](#))
- Which factors/institutional innovations can engender cooperative decision-making and/or widespread, cross-group behavior change?
- What general lessons can be drawn about the roles of agroecological science, practice, and social trends in prompting agency and behavior change?

Main proposed scientific methods

- Literature review and interviews to take stock of agroecological approaches, theories of change for agency and behavior change, and successes and failures in each ALL region, to enable comparison of pre- and post-intervention trajectories and milestones of agency and behavior change in agroecological transformation.
- Expert and key informant elicitation and scoring/prioritization of agroecological innovations of focus in each ALL.
- Observation and participatory analysis (with WP1 participants) to identify: (a) appropriate actor-specific changes (including actor roles and interfaces, behavior and intrinsic values references, and knowledge and capacity to innovate) for selected agroecological innovations (practices, business models, institutional arrangements), (b) key facilitators and barriers to desired changes, and (c) institutional settings favoring capacity enhancement and behavior changes.
- Iterative and participatory approach to designing, implementing, monitoring, evaluating, and reflecting upon a context-specific TOC, including behavior change of different actors within WP1.

- Multi-actor-focused group-led trials for various influencing factors — using a participatory research method that structures participant engagement through a cycle of learning and change known as “Expansive Learning Cycle”.^{30, 31}
- Observation, participatory analysis, and agent-based modeling to compare transformational agency, behavior change, and decision-making results from the multi-actor focus group-led trials and other activities conducted during ALLs (WP1), business models (WP3), and policy-enabling environment (WP4).

Key outputs

- An inventory of research interventions, agroecological science, practices, political economy factors, power balances and relationships, and social movement successes and failures to engender agency and behavior change towards agroecological transitions, synthesized into key lessons on the change process that can drive agroecological transitions.
- Key determinants and drivers of agency and behavioral factors of each actor group in every ALL (including gender-sensitive analysis) that influence inclusive agroecological transitions identified and incorporated into strategies (WP4) and investment plans (WP3).
- Key interface and institutional reconfigurations that support local agroecological innovation identified and disseminated to agricultural innovation researchers, practitioners, and producer organizations (through WP4).
- Key factors to engender cooperative decision-making and widespread, cross-group behavior change identified and applied in ALL food system institutions.
- Agency and behavior change research results integrated in AE-I MELIA planning and tools.
- Key roles of agroecological science, practices, and social movements in enabling agency and behavior change to support agroecological transitions identified, synthesized across ALLs, and incorporated into strategies and investment plans (developed in WP3 and WP4).

WP5 theory of change narrative

For scientists, funders, policymakers, and civil society to be empowered to re-orient or adjust their strategies and action plans — based on knowledge gained from scientific studies about the mechanisms behind behavioral change and capacities of farmers and consumers to implement agroecological transformation (WP Outcome) — we must use assessment frameworks (WP2) to compare pre- and post-intervention trajectories in the ALLs (WP1) to understand what behaviors (WP5) are driving agroecology-related failures and successes experienced by farming communities, consumers, and policymakers (also examining any gender-driven behavior differences). This requires a deeper understanding of the agency, opportunities, and barriers to change experienced by all FSAs and institutions, enriched by evidence on farmer and FSA preferences and priorities (WP1). Research on agency and behavior change of different actors, as well as interfaces between actor groups, will identify approaches to triggering change in attitudes, interactions, and practices. By establishing a participatory “Expansive Learning Cycle” in each ALL, WP5 will generate evidence on: (a) the agency and behavioral factors (including common behavior determinants by actor group and gender) present in agroecological interventions that facilitate (or impede) transition, (b) interface and institutional reconfigurations with a behavioral component required to support local agroecological innovation, (c) how best to engender, first, more cooperative and socially-equitable decision-making, and second, broad-based, cross-actor-group behavior change (including consumers), and (d) the role of agroecological science, practice, and social movements in effective agroecological transitions (Outputs). This evidence will be disseminated to farming communities, researchers, producer organizations and their business partners, and policymakers, who will use it to (i) better

understand how human behavior can move the dial of agroecological transition, (ii) continue improving business model arrangements for supporting agroecological transitions (WP3), and (iii) explore and implement strategies for better policy integration and local institutions required to catalyze agroecological transitions (WP4) (use of Outputs by actor groups). Finally, WP5 will empower scientists, funders, policymakers, business partners, and civil society to incorporate this evidence, and evidence on the roles of the mechanisms behind behavioral change and capacities of food system actors to advance agroecological transitions (WP1, WP3 and WP4), to re-orient or adjust their strategies and action plans (WP Outcome). The TOC is underpinned by assumptions that: (A1) researchers will be able to use evidence on agency and behavior change to improve prediction modeling on behavior change factors that might affect agroecology uptake and mainstreaming via (WP4) policy and institutional integration and (WP3) business models and financial mechanisms, (A2) actors (e.g., policymakers, extension workers, and scientists) are willing to make structural and behavioral changes that benefit the agency and behavior options of other actors (e.g., producers, consumers) within the territorial food system, and (A3) at Initiative end, AE-I project outputs (Evidence) continues to influence behavioral change across a range of food system actors, ensuring continued broad-based support for implementation of effective agroecological innovation.

4. Innovation Packages and Scaling Readiness Plan

4.1 Innovation Packages and Scaling Readiness Plan

This Initiative directly addresses scalability as a critical challenge for Agroecology. The Initiative will use [Scaling Readiness Assessment](#) to adapt WP research and deliverables and improve impact pathways. Technological (WP1), methodological (WP2) and institutional (WP3–5) innovations will be combined into Innovation Packages to enhance adoption and implementation of agroecological principles by farmers and other FSAs in each ALL. Scaling readiness assessments across all WPs will identify obstacles to adoption and facilitate an enabling environment for scaling. AE-I will collaborate with other organizations (e.g., GIZ, Biovision and GRET) currently working with policymakers, private sector, and investors on agroecological transitions. Outcome tracking activities of MELIA will include the adaptation and use of methods (e.g., [ADOPT](#)) to estimate the potential scope of adoption of innovations packages by different FSAs. AE-I will adopt the One CGIAR Wave 2 backstopping commencing in Q4 2022, with at least four scaling readiness reports/strategies developed by 2024. AE-I has allocated US\$ 200,000 to conduct the scaling readiness assessments in at least four ALLs. These funds will be used flexibly to ensure that these assessments can adaptively analyze the status of new innovations and scaling bottlenecks. In addition, the Initiative will allocate US\$ 500,000 to catalyze investment by private-sector investors that facilitates implementation of agroecological innovations at scale. For example, with these funds, the Initiative will collaborate with Biovision and partners of the [TPP](#) in a planned Agroecological Innovations Accelerator intended to remove technical bottlenecks to agroecological investments.

5. Impact statements

5.1 Nutrition, health & food security

Challenges and prioritization: Despite the Green Revolution, food insecurity and malnutrition remain pressing global concerns.³² Globally one in nine people go hungry or are undernourished and almost a quarter of all children under 5 years of age are stunted. Overweight and obesity are also increasing rapidly in nearly every country in the world. There are significant inequalities in food security and nutrition outcomes between and within countries and populations targeted in our Initiative. In many cases, the poor cannot access or afford a healthy diet or consume unsafe food because of the use of harmful agrochemicals. Concerns have been raised about agroecology implications for food security and nutrition, but evidence indicates that agroecological practices can have positive outcomes on food security and nutrition in households in LMICs.³³

Research questions: **WP1** asks to what extent are current small-scale farming operations agroecological, based on specific agroecological criteria (including food security and dietary diversity indicators); how do agroecological innovations perform (across all agroecological indicators including those related to food security and dietary diversity) in pilot farms and across landscapes; and how should they be adapted? **WP2** asks how agroecological interventions at farm, landscape, and food system level compared to other approaches, not only in relation to production but also food security and dietary diversity? **WP3** and **WP4** question how business models/innovative investment modalities, and policies/institutions, can be developed to promote the adoption of agroecological principles, including greater production diversity and reduced use of harmful agrochemicals to promote increased access to diverse and safe food; and **WP5** will determine the behavioral determinants/drivers (including those pertaining to diet and health) that facilitate or impede the implementation of agroecological innovations.

Components of Work Packages (refer to WP outcomes in section 2.2)

WP	Selected research activities that contribute to this Impact Area	Outputs
1	Participatory evaluation of agroecology criteria (including food security, safe production, and dietary diversity criteria) for current and new practices to determine how agroecological these practices are. Participatory co-design of agroecological practices or systems (including food security, safe production, and dietary diversity considerations)	Agroecological innovations for agricultural systems (practices) co-designed with farmers, scientists, and extension agents (considering food security, safe production, and dietary diversity aspects). Early and projected benefits of agroecological practices in productivity, ecosystem services, biodiversity, and contribution to dietary diversity, profitability and risk, social inclusion, and farmers' agency evaluated.
2	Review and compile applied indicators and metrics (including for food security and dietary diversity) to assess change along agroecological principles by application of agroecological innovations in agroecosystems and food systems. Testing, validation and application of a holistic performance framework across seven ALLs (and beyond), including food security and dietary diversity metrics).	Knowledge base of the contributions of agroecological innovations to the application of agroecological principles across seven ALLs and context-specific contributions to social, economic, and environmental indicators assessed.
3	Co-design or co-adjustment of new or existing business models among trading partners incorporating agroecological principles (which embrace food security and diet diversity aspects).	New or redesigned business models co-developed under agroecological principles. Investment cases to inform dialogs with interested private and public investors in supporting the co-designed business models, including financial returns, economic performance

	DCEs applied to estimate consumer willingness to pay for agroecological products (that have healthy and food safety attributes).	and non-monetary benefits (including food security and dietary diversity benefits).
4	Develop agroecology policy tracking tool to identify how these policies affect implementation of agroecological principles (which embrace food security and dietary diversity aspects). Participatory analysis of local and governance structures, and co-design of adjusted/new institutions to enable agroecological transitions. Participatory identification strategies to strengthen policies and institutions supporting agroecological transitions.	Identified policies that favor, limit or impede agroecological transitions, as well as new opportunities for policy integration. Opportunities for improving the potential of local institutions and governance structures to catalyze agroecological transitions identified with food system actors in each ALL. Recommendations and action plans for policy and institutional changes in ALL countries or regions.
5	Expert and key informant elicitation and scoring/prioritization of agroecological innovations of focus in each ALL (including food security and dietary diversity criteria). Observation and participatory analysis to identify appropriate actor-specific changes, key facilitators and barriers, and institutional settings for agroecological transitions	Key determinants and drivers of agency (including those pertaining to diet and health) and behavioral factors of each actor group in all ALLs that influence inclusive agroecological transitions identified and incorporated in strategies (WP4) and investment plans (WP3).

Measuring performance and results

In a three-year timeframe, this Initiative will lead to FSAs who incorporate food security, health, and dietary diversity aspects into the co-development of agroecological innovations, and this will favor healthy food production and consumption by targeting: (i) 4,500 farmers benefit from greater food production diversity, less use of harmful agrochemicals, and increased income generation that provides opportunities for healthier diet intake (STi 1.2 – number of farmers using agroecological practices disaggregated by gender); (ii) at least seven strategic business partnership and seven financial mechanisms established and functioning that lead to business models linking agroecological innovations to markets (and then consumers); (iii) at least 20 national and sub-national policymaking bodies or sectoral organizations promoting policy integration recommendations for agroecological transitions; and (iv) an average increase of 25% in agroecological investment across seven ALLs. Contributions of these target Initiative outcome indicators to improved food security, reduced agrochemical use, and increased diet diversity will be assessed with WP2 metrics and monitored by MELIA.

Partners: Demand partners: agricultural extension, nutrition, and social protection national programs working towards affordable access to healthy food and production diversification. Scaling partners: GIZ-led KCOA and ISFAA, targeted private sector companies in each ALL. Innovation partners: NARS in each targeted country, local universities, CIRAD, ICRAF, and CIFOR.

Human resources and capacity development of the Initiative team: This Initiative will allocate, to each site, the time of a senior multidisciplinary expert in indicator/metric development and application, an agrobiodiversity senior expert, and agronomists, senior expert in public/private policies related to agroecology principles; senior expert on participatory and iterative learning methods; co-design and collective action processes, and a nutritionist. The Initiative will work with additional local nutrition and food security experts from NARS in each ALL. Through partnerships with NARS, the Initiative will build knowledge on specific attributes of and local preferences for dietary diversity and use this to tailor agroecological innovations to each context.

5.2 Poverty reduction, livelihoods & jobs

Challenges and prioritization Globally, extreme poverty is predominantly rural: an estimated 79% of those experiencing poverty live in rural areas.³⁴ Poverty is greatest amongst those with less access to resources and basic services, typically ethnic minorities, marginal farmers, the landless, farm laborers, and women and children. There is relatively little data, but case studies have demonstrated that agroecological interventions can contribute to increased farmer profitability³⁵ and, by promoting diversified markets and green jobs and supporting diverse forms of small-scale food production, can also strengthen non-financial components of livelihood capital.⁴ This Initiative will target ways for agroecology to increase opportunities for women and youth, as well as marginalized populations (e.g., through inclusive business models). The goal will be to identify and promote agroecological solutions that increase farm profitability whilst delivering more sustainable nutritious foods and achieving decent jobs and income goals for other FSAs.

Research questions: **WP1** will answer how agroecological innovations perform (across all agroecological indicators from productivity to profitability, social equity, and nature-positive gains) in territorial food systems, and how they should be adapted. **WP2** asks what the current condition of small-scale farming in each of the targeted territories is in terms of income, profitability, risk/debt indicator, and how agroecological innovations (agricultural practices, business models, and institutional arrangements) compared to BAU scenarios in targeted territories, from social, to economic (profitability, risk/debt, input use), and environmental perspectives. **WP3** asks what is the contribution of current business models, markets, and investment modalities in the targeted territorial food systems to agroecological principles, including fair employment and income opportunities for women, youth, and vulnerable community members, and local governance of resources; what are the costs and benefits of the proposed agroecological transitions; how profitable are they, what level of risk they pose for farmers compared with the BAU scenario, and which financial instruments or economic incentives support their implementation; and how do new or reconfigured business models contribute to improving context-specific social, economic, and environmental indicators compared to the baseline.

Components of Work Packages (refer to WP outcomes in section 2.2)

WP	Selected research activities that contribute to this Impact Area	Outputs
1	Participatory evaluation of agroecological practices in ALLs focusing on early changes, complemented with projection of changes to soil health, water-related ecosystem services, biodiversity, profitability, productivity, and social inclusion. Participatory co-design of agroecological practices or systems that consider income and profitability implications.	Current conditions of targeted agricultural systems evaluated with farmers along different agroecological criteria, productivity, inputs use, and profitability and risk/debt. Early and projected benefits of agroecological practices in productivity, ecosystem services, biodiversity, and contribution to dietary diversity, profitability and risk, social inclusion, and farmers agency evaluated.
2	Testing, validation, and application of holistic assessment framework across seven ALLs (and beyond), with common general components, but also with specific indicators across contexts to reflect local priorities and interests.	Knowledge base of the contributions of agroecological innovations to the application of agroecological principles across seven ALLs and context-specific contributions to social, economic and environmental indicators assessed for baseline. Financial metrics that capture inventories of relevant practices and mechanisms for uptake of and investment in agroecological approaches.

3	<p>CBA and financial assessment of current business models in selected territorial food systems, and for proposed agroecological transitions.</p> <p>Co-design or co-adjustment of new or existing business models among trading partners incorporating agroecological principles.</p> <p>Financial analyses to identify the most appropriate investment case to support and scale the agroecological practices that form part of new business model arrangements.</p>	<p>Current business models and financial modalities classified according to how they perform on agroecological principles, social equity, and economic viability.</p> <p>CBAs that capture the profitability of innovative business models with that of current (conventional) business models carried out, for short- and long-term periods.</p> <p>New or redesigned business models co-developed under agroecological principles, such that, in their application, they empower producers and producer groups to participate more effectively in markets by establishing more inclusive producer-buyer links.</p> <p>Investment cases to inform dialogs with interested private and public investors in supporting the co-designed business models.</p>
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Measuring performance and results: Towards achieving WP3 outcome (Section 2.2), the Initiative will implement inclusive business partnerships and will collaborate with Initiatives aimed at unlocking funding for agroecological transition (e.g., the “Agroecology Innovation Accelerator”). Through this the Initiative will create mechanisms for generating revenue and jobs that will help to sustain livelihoods supported by agroecological principles. This will be possible through: at least one strategic business partnership established and functioning in each ALL that leads to the co-development or adaptation of business models linking agroecological innovations to markets; at least one financial mechanism in each of the seven ALLs that supports agroecological innovation; and all these together will contribute to an average increase of 25% in agroecological investment across the seven ALLs. Initiative monitoring and ex-ante impact assessment (see section 6.2) will assess how these outcome targets contribute to increased incomes and job generation against baselines established together with WP2.

Partners: Demand partners: private companies mapped in each of the seven intervention sites, public funders (national and international governments), impact investors; scaling partners: Biovision, private companies, impact investors; innovation partners: trading partners, NARS with expertise on value chain and business model analyses.

Human resources and capacity development of the Initiative team: Senior expert on value chain analyses, sustainable finances and business models, sustainable finance expert, three economists, expert in feed business and entrepreneurship and milk value chain expert (for Burkina Faso and Tunisia), senior multidisciplinary expert in indicator/metric development and application, expert for the application of participatory analysis of value chains and business models. In addition, the Initiative will incorporate specialized expertise in financial analyses in local partners organizations. The Initiative will support training of researchers, authorities and farmer organizations on what investors need to make decisions in sustainable agriculture.

5.3 Gender equality, youth & social inclusion

Challenges and prioritization: Present food systems typically reflect and reinforce social inequalities. This inequality is intensified by shocks, such as the COVID-19 pandemic and more frequent climate emergencies, that have cascading effects throughout the food system, undermining food and nutrition security for low-income populations.³⁶ A focus on empowerment of women as key actors in agricultural and food systems is widely reported as critical to enhancing potential impacts on food security, diets, and health.³⁷ This Initiative will generate evidence to address food system inequities and the inequitable processes and policies that create them. It will investigate how different aspects of marginalization interact in different contexts. As part of the co-creation process of agroecological innovations in ALLs, this Initiative will proactively seek opportunities to empower women and youth, as well as marginalized groups, in decision-making processes. An equity and inclusion lens will be central to all Work Packages and the MELIA activities.

Research questions: **WP1** interrogates on what are the 'best-bet' agroecological practices preferred by women and men farmers? How these agroecological innovations perform (across all agroecological indicators, from productivity to social equity and nature positive gains) in the territorial food systems, and how they should be adapted; and on what are the barriers, drivers (including gender preferences), and opportunities for farmers to adopt agroecological innovations vs. conventional innovations. **WP2** asks how farmer and FSA characteristics (including gender, age, and wealth differences) can be combined with objective measures to generate evidence on holistic performance of agroecological innovations (technological and institutional) across contexts, and how agroecological innovations compare to BAU scenarios in targeted territories, from social (social inclusion and farmers agency), to economic and environmental perspectives. **WP3** will provide answers on the contribution of current and new business models, markets, and investment modalities in the targeted territorial food systems to agroecological principles, including fair employment and income opportunities for women, youth, and vulnerable community members, and local governance of resources. **WP4** questions and will explore how current cross-sectoral and multi-scalar public policies constrain or enable agroecological transitions in targeted contexts and for different types of actors (e.g., women/men farmers, buyers, service providers, consumers, etc.), what agroecological principles are more mainstreamed than others, and which principles are currently less supported (policy gaps). **WP5** assess, for each actor group (producer organizations, value chain participants, consumers, researchers, rural advisory services, the private sector, policymakers, civil society), what are the behavior determinants/drivers that facilitate or impede the implementation of agroecological innovations, how they access resource (e.g., financial, technical, and knowledge), the various types of available evidence, actor relationships, interactions, and learning exchange that influence the agency of farmers and other food system actors, including by gender, age, ethnicity, etc., and how this agency supports (or not) agroecological transitions, and which factors/institutional innovations can engender cooperative decision-making and/or widespread, cross-group behavior change.

Components of Work Packages (refer to WP outcomes in section 2.2)

WP	Selected research activities that contribute to this Impact Area	Selected outputs
1	<p>Participatory co-design of agroecological practices or systems for small-scale farms, blending scientific and local knowledge.</p> <p>Participatory evaluation of agroecological practices in ALLs focusing on early changes in social inclusion (among other indicators).</p>	<p>Agroecological innovations for agricultural systems (practices) co-designed with farmers, scientists, and extension agents.</p> <p>Early and projected benefits of agroecological practices in social inclusion and farmers' agency evaluated.</p>

	Depending on the context (or the stage of AE transitions in each site): (1) Likelihood of adoption of agroecological practices and engagement in AE transition, or (2) adoption studies, including contextual (including gender and social inclusion) factors related to propensity to adopt or adoption/non-adoption decisions.	Willingness to adopt new agroecological practices tested; determinants of adoption of existing agroecological practices understood (incorporating gender preferences).
2	Evaluation of farmer and other food system actor priorities in ALLs as input for the development of a holistic performance framework, and for assessing different types of agroecological innovations (practices, business models, institutional innovations) Testing, validation, and application of framework across 7 ALLs (and beyond), with common general components but also with specific indicators across contexts to reflect local priorities and interests of all actors.	Knowledge base of the contributions of agroecological innovations to the application of agroecological principles across seven ALLs and context-specific contributions to social, economic, and environmental indicators assessed for baseline.
3	Application of the holistic performance framework for assessing agroecological business models (including social inclusion criteria) Co-design or co-adjustment of new or existing business models among trading partners incorporating agroecological principles (including fairness and social inclusion criteria).	New or redesigned business models co-developed under agroecological principles, such that, in their application, they increase the inclusion of women, youth, and disadvantaged members of society, and empower producers and producer groups to participate more effectively in markets by establishing more inclusive producer-buyer links.
4	Participatory analysis of local (formal and informal) institutions and governance structures (actors, rules and norms, effectiveness, and bottlenecks), and co-design of adjusted/new institutions to enable agroecological transitions.	Opportunities for improving the potential of local institutions and governance structures to catalyze agroecological transitions identified with women and men FSAs in each ALL.
5	Expert and key informant elicitation and scoring/prioritization of agroecological innovations of focus in each ALL Iterative and participatory approach to design, implement, monitor, evaluate, and reflect on a context-specific theory of change, including behavior change of different actors.	Key determinants and drivers of agency and behavioral factors of each actor group in all ALLs (including gender-sensitive analysis) that influence inclusive agroecological transitions identified and incorporated in strategies (WP4) and investment plans (WP3). Key factors to engender cooperative decision-making and widespread and cross-group behavior change identified and applied in each ALL food system institutions.

Measuring performance and results: The Initiative will evaluate the contribution of agroecological innovations to improved social inclusion on farm and in business models. Adaptive scaling strategies (e.g., business models and policy instruments) and dialog platforms within ALLs will increase the agency of women, youth, and marginalized social groups to benefit from expanded options. This through the incorporation of social inclusion, agency and gender equality criteria in: i) the equitable co-design and test of context-relevant agroecological innovations with at least 1000 farmers, 250 national and international researchers, and other FSAs (including at least 35 private sector companies and 40 policymakers) in all ALLs; ii) the establishment and functioning of at least one strategic business partnership in each ALL that leads to the co-development of business models linking agroecological innovations to markets; iii) the design of at least one financial mechanism in each of the seven ALL that supports agroecological innovation; iv) the creation of at least one new or enhanced institutional arrangement in each ALL to better support agroecological transitions; and v) the incorporation of factors to engender cooperative decision-making in at least 10 strategies or action plans of food system stakeholder groups. Through the implementation of the MELIA plan, WP2 and WP5, the contribution of these outcome indicators to social inclusion and gender equality will be assessed in each ALL adapting existing metrics such as the Gender Empowerment Index for Climate-Smart Villages GEI-CSV index to measure women’s and men’s empowerment resulting from the co-creation and implementation process of agroecological innovations, the Pro-WEAI (Women’s Empowerment in

Agriculture Index) [indicators](#) (STRAFSGii) to measure changes in agency, and social inclusion metrics that embraces three aspects: recognition, representation and participation, and distribution of costs and benefits.³⁸

Partners: Demand partners: Authorities of economic development sectors of targeted countries, investors, and development agencies with interest in agroecological transformation (GIZ, IFAD, IDRC, EU, SDC, among others). Scaling partners: Trading partners, investors, private sector and policymakers, GIZ-led KCOA and ISFAA, ALiSEA and Biovision. Innovation partners: CIRAD, ICRAF-CIFOR, CGIAR HER+ Initiative and Gender Impact Platform, local universities and NARS.

Human resources and capacity development of Initiative team: Senior expert on participatory processes, methods. ALL network Coordination (WP1), expert in design and overall coordination of multistakeholder participatory processes and participatory methods (WP1), Gender, livelihoods, diversity, inclusion expert (WP2), Senior expert in local institutions (WP4), Senior expert on social inclusion, gender, agency, and behavior change (WP5), Expert on agent-based modelling (WP5). The Initiative will coordinate during the inception phase a training to innovation and scaling partners on how to mainstream gender and social inclusion in agroecology projects.

5.4. Climate adaptation & mitigation

Challenges and prioritization Land and food systems are both strongly affected by and a major contributor to climate change. Agriculture and land-use change account for a quarter of total global emissions of greenhouse gases.³⁹ Integrated assessment models indicate that climate change affects agricultural yields and earnings, food prices, reliability of delivery, food quality, and food safety. Low-income producers and consumers of food are most vulnerable to climate change because of their comparatively limited ability to adapt to increasing climatic risks.⁴⁰ Agroecology can contribute to increased climate resilience both through application of agroecological principles and by strengthening social aspects through co-creation and sharing of knowledge in ALLs. The climate potential of agroecology is supported by the IPCC Special Report on Climate Change and Land⁴¹ and more than 10% of NDCs by UNFCCC member states indicate it as an approach to address climate change⁴². By promoting adoption of agroecology, this Initiative is prioritizing a highly resilient, low-carbon development pathway. The Initiative will contribute to the evidence base on the role of agroecology in contributing to both climate change mitigation and adaptation in land and food systems across diverse contexts.

Research questions: **WP1** asks how do these agroecological innovations perform (across all agroecological indicators including resilience and nature positive gains i.e., carbon sequestration, and climate change adaptation) in territorial food systems and how should they be adapted. **WP2** will investigate how agroecological innovations (agricultural practices, business models, and institutional arrangements) compared to BAU scenarios in targeted territories, from social, to economic and environmental perspectives (ecosystem services, carbon and water footprints, and biodiversity). **WP4** asks what the impacts of taking agroecological transitions to scale will be on socio-economic and environmental conditions, and how will this facilitate government priorities and commitments (contained in NDC and NAP).

Components of Work Packages (refer to WP outcomes in section 2.2)

WP	Selected research activities that contribute to this Impact Area	Selected outputs
1	Participatory evaluation of agroecological practices in ALLs for early and projected changes, in ecosystem services (i.e., Climate change mitigation) and adaptation capacity Participatory co-design of agroecological practices or systems (depending on the AE transition pathway) for small-scale farms, blending scientific and local knowledge.	Agroecological innovations for agricultural systems (practices) co-designed with farmers, scientists, and extension agents. Early and projected benefits of agroecological practices in ecosystem services (climate change mitigation), adaptation capacity and other aspects
2	Development of a holistic performance framework, comprising tools (e.g., models, field methods, and participatory monitoring) for application at different scales (farm, landscape, territorial food system) and for assessing different types of agroecological innovations from social (including adaptation capacity), to economic and environmental perspectives (i.e., carbon sequestration and footprints).	Knowledge base of the contributions of agroecological innovations to the application of agroecological principles across seven ALLs and context-specific contributions to social, economic and environmental indicators assessed for baseline
4	Environmental modeling (including carbon stocks and GHG) of effects of implementing agroecological transitions at scale	Ex-ante assessment of the effects of scaling agroecological transitions on government socio-economic and environmental priorities and commitments (e.g., NDC, CBD, etc.)

Measuring performance and results: In each of the ALLs, the Initiative will evaluate the contribution of agroecological innovations to reduced GHG emissions through safeguarding of above and below ground carbon stores (e.g., in forests, wetlands and grasslands) and via

reduction in agrochemical fertilizer use, as well as enhanced carbon sequestration through improved soil health and agroforestry (STi 1.1 Number of farmers using climate smart practices disaggregated by gender; STRAFSi1.1 Number of smallholder farmers who have implemented new practices that mitigate climate change risks, disaggregated by gender). Methods of life cycle assessment will be used for comparison of agroecological practices with conventional approaches, and will be included in the formulation of investment cases (in WP3). Across the ALLs the AE-I will target: i) 5,000 ha with improved soil health and fertility due to agroecological management; ii) 15-20% reduction in GHG emissions from land under agroecology; and iii) 5% increase in carbon sequestration from land under agroecology. Evaluation of these target indicators will be assessed with WP2 metrics and monitored by MELIA.

Partners Demand partners: Government and national/regional institutions working on policies and strategies for climate change adaptation and mitigation. Scaling partners: The same government and national/regional institutions as well as extension services and private sector climate and impact investors, GIZ-led KCOA and ISFAA, ALISEA and Biovision. Innovation partners: CIRAD, ICRAF-CIFOR, GRET, NARS.

Human resources and capacity development of Initiative team: Senior Multidisciplinary expert in indicator/metric development and application (WP), Gender, livelihoods, diversity, inclusion expert (for climate adaptation and resilience metrics), Soil health expert (for soil carbon stocks), environmental modeling expert (for climate change mitigation assessment), Senior expert on participatory processes, methods (for adaptation and resilience metrics). This Initiative will collaborate with EiA and MITIGATE+ to coordinate common frameworks to assess land-use based climate change mitigation, and with LCSR and HER+ Initiatives to develop common frameworks to assess resilience and adaptation capacity.

5.5 Environmental health & biodiversity

Challenges and prioritization in the process of providing humanity with food, food systems have significant impacts on the environment. Impacts vary widely based on farming practices and scale of interventions but, globally, agriculture is the largest driver of deforestation and wetland loss, the largest consumer of water and, through application of agrochemicals, one of the biggest polluters of both surface water and groundwater.⁴³ It is also the primary driver of accelerating biodiversity loss⁴⁴ and soil degradation.⁴⁵ It is widely recognized that to halt and reverse these impacts food systems need to urgently transform. Agroecology, by promoting a more environmentally friendly, biodiversity supporting approach that limits the use of inputs harmful for the environment, and favor diverse farming practices, directly addresses these challenges and can make a significant contribution to just such a transformation.¹ Environmental health and biodiversity constitute a primary Impact Area for the AE-I and as indicated below are embedded in all work packages.

Research questions. WP1 questions how do these agroecological innovations perform (across all agroecological indicators including water, soil health and biodiversity indicators) in territorial food systems and how should they be adapted. **WP2** asks how do agroecological innovations compare to BAU scenarios in targeted territories, from an environmental perspective (ecosystem services, water footprints, and biodiversity). **WP3, WP4** and **WP5** interrogate how business models/innovative investment modalities, policies/institutions, and food system actor behaviors respectively, can be developed to promote the adoption of agroecological principles that protect biodiversity and enhance environmental outcomes across food, water, and land systems.

Components of Work Packages (refer to WP outcomes in section 2.2)

WP	Selected research activities that contribute to this Impact Area	Selected outputs
1	Participatory evaluation of agroecology criteria for current and new practices to determine how agroecological these practices are (including soil health, water use and (agro)biodiversity status indicators).	Early and projected benefits of agroecological practices in ecosystem services (water-related, soil-mediated), biodiversity among other dimensions.
2	Review and compile applied environmental, social, and economic indicators and metrics (e.g., TEEB, Global Footprint, TAPE-FAO, BioVision ACT, IFAD-AE, natural capital accounting, etc.) to assess change along agroecological principles prompted by application of agroecological innovations in agroecosystems and food systems Testing, validation and application of framework across seven ALLs (and beyond), with common general components but also with specific indicators across contexts to reflect local priorities and interests.	Knowledge base of the contributions of agroecological innovations to the application of agroecological principles across seven ALLs and context-specific contributions to social, economic, and environmental indicators assessed for baseline.
3	Co-design or co-adjustment of new or existing business models among trading partners incorporating agroecological principles	New or redesigned business models co-developed under agroecological principles, such that in their application, they protect biodiversity and enhance environmental outcomes.
4	Participatory analysis of local (formal and informal) institutions and governance structures (actors, rules and norms, effectiveness, and bottlenecks), and co-design of adjusted/new institutions to enable agroecological transitions	Opportunities for improving the potential of local institutions and governance structures to catalyze agroecological transitions identified in each ALL with a key objective of protecting biodiversity and enhancing environmental outcomes, across food, land, and water systems.

	Participatory identification of strategies to strengthen policies and institutions supporting agroecological transitions	Recommendations and action plans for policy and institutional changes in ALL countries or regions that in implementation protect biodiversity and enhance environmental outcomes across food, land and water systems
5	Expert and key informant elicitation and scoring/prioritization of agroecological innovations of focus in each ALL Iterative and participatory approach to design, implement, monitor, evaluate, and reflect on a context-specific theory of change, including behavior change of different actors	Key determinants and drivers of agency and behavioral factors of each actor group in all ALLs (including consideration of environmental and biodiversity implications) that influence inclusive agroecological transitions identified and incorporated in strategies (WP4) and investment plans (WP3). Key factors to engender cooperative decision-making and widespread and cross-group behavior change identified (including possibly desire to protect and sustain the environment and biodiversity) and applied in ALL food systems institutions.

Measuring performance and results

This Initiative will provide a better understanding of the complex, interrelated biophysical and socio-economic issues related to the implementation of agroecology in each of the seven ALLs. In each ALL, AE-I will evaluate the contribution of agroecological innovations to ecosystem services and reduced blue, green, and gray water footprints (STi 3.2 – area under improved water use plans or water use efficiency measures), as well as other environmental footprints (e.g., biodiversity and land), the exact features of which will be determined in consultation with farmers and other stakeholders. Without wishing to pre-empt discussions with stakeholders, possible metrics for evaluation might be: (i) 50% of inputs with improved management, and reduction in gray water footprint from land employing agroecological practices (STi 3.3 – trends in measures of non-point pollution); (ii) reduced non-beneficial evaporation and 10% increase in dry-season blue (surface and/or groundwater) water availability from land employing agroecological practices; and (iii) 2% increase in species abundance (reduced biodiversity footprint) on land employing agroecological innovations.

Evaluation of these target indicators, or others identified with stakeholders, will be assessed with WP2 metrics, and monitored by MELIA.

Partners Demand partners: Government and national/regional institutions working on policies and strategies for environmental and biodiversity protection as well as sustainable agriculture. Scaling partners: The same government and national/regional institutions, as well as extension services and private-sector agriculture and impact investors, GIZ-led KCOA and ISFAA, ALiSEA and Biovision. Innovation partners: CIRAD, ICRAF-CIFOR, GRET, NARS.

Human resources and capacity development of Initiative team: Senior Multidisciplinary expert in indicator/metric development and application, Soil health expert, Ecology/Biodiversity expert, Environmental (water, land, (agro)biodiversity) modeling expert, Senior expert on participatory processes, methods. Training workshops will be organized by WP2 to share, align, and adapt tools, indicators, and models to be used across ALLs for the assessment of changes in ecosystem services, water, soil health, (agro)biodiversity components with and without agroecological innovations. This Initiative will collaborate with EiA and Nature+Agriculture Initiatives to build a common assessment framework for soil health and (agro)biodiversity indicators, respectively.

6. Monitoring, evaluation, learning and impact assessment (MELIA)

6.1 Result framework

CGIAR Impact Areas											
Nutrition, health and food security		Poverty reduction, livelihoods and jobs		Gender equality, youth and social inclusion		Climate adaptation and mitigation			Environmental health and biodiversity		
Collective global 2030 targets											
The collective global 2030 targets are available centrally here to save space.											
Common impact indicators that your Initiative will contribute to and will be able to provide data towards											
# people benefiting from relevant CGIAR innovations.		# people benefiting from relevant CGIAR innovations.		# women benefiting from relevant CGIAR innovations # youth benefiting from relevant CGIAR innovations.		# tonnes CO2 equivalent emissions # \$ climate adaptation investments # people benefiting from climate-adapted innovations.			# ha under improved management # km3 consumptive water use # ha deforestation # Tg nitrogen application.		
SDG targets											
2.3, 2.4		1.1, 1.4, 1.5, 1.b.		8.2		13.1			6.2, 6.4, 12.2, 15.1, 15.5		
Action Area: Systems Transformation											
Action Area outcomes and indicators											
<ul style="list-style-type: none"> Farmers use technologies or practices that contribute to improved livelihoods, enhance environmental health and biodiversity, are apt in a context of climate change, and sustain natural resources Food system markets and value chains function more efficiently, equitably, and sustainably and lead towards healthier diets National and local governments utilize enhanced capacity (skills, systems, and culture) to assess and apply research evidence and data in policy-making process Women and youth are empowered to be more active in decision making in food, land, and water systems 						STi 1.1 - Number of farmers using climate smart practices disaggregated by gender STi 1.2 - Number of farmers using agroecological practices disaggregated by gender STi 1.3- Measurable implications of adoptions such as production, profitability, input use, product quality and associated price, environmental and health damage avoided, livelihood, and employment STi 3.1 Area of land under improved mitigation plans (or area that is decreasing in net carbon emissions – more ambitious and longer term) STRAFSGli 1.1 Positive trends in the Women's Empowerment in Agriculture Index (WEIA) at various scales including nationally STRAFSi 2.1 Number of policies/strategies/laws/regulations/budgets/investments/curricula (and similar) at different scales that were modified in design or implementation, with evidence that the change was informed by CGIAR research STi 3.2 Area under improved water use plans (or water use efficiency measures – more ambitious and longer term) STi 3.3 Trends in measures of non-point pollution where available.					
Initiative and Work package outcomes, outputs and indicators											
Result type (outcome or output)	Result	Indicator	Unit of measurement	Geographic scope	Data source	Data collection method	Frequency of data collection	Baseline value (outcome only)	Baseline year (outcome only)	Target value	Target year
WORK PACKAGE 1: Transdisciplinary co-creation of innovations in Agroecological Living Labs (ALLs)											

Output 1.1	Current conditions of targeted agricultural systems (in each ALLs) evaluated with farmers against multiple criteria	Evaluation report containing evaluation criteria and database of participating farmers	Number of evaluation reports	Global (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Initiative database with criteria characterization, reports of participatory workshops to evaluate conditions of agricultural systems	Surveys, rapid field assessment of biophysical indicators, and focus-group discussions	Once (Baseline)	NA	NA	One report per ALL	2022
Output 1.2	The most suitable agroecological transition pathways in each ALL identified and agreed among actors	Consultation report that includes criteria and prioritization exercise conducted together with local actors to an agreed common desired agroecological transition pathway	Number of reports per ALL	Global (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Database of participating actors, meeting reports	Multi-stakeholders' consultation -workshops	Once (i.e., one workshops per country in year 1)	NA	NA	One consultation report per ALL specifying the transition pathway agreed among actors	2022
Output 1.3	Key agricultural practices that require adaptation or change with agroecological approaches identified	Technical report containing criteria and process for identifying these practices in each ALL	Number of technical reports per ALL	Global (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Initiative baseline database, participatory workshops minutes	Multidisciplinary and multi-stakeholder consultation workshops, application of participatory research methods for priority setting	Twice (i.e., two workshops per ALL)	NA	NA	One technical report per ALL with site-specific list of practices that require adaptation and change	2022
Output 1.4	Agroecological innovations for agricultural systems (practices) co-designed with farmers, scientists, and extension agents	Implementation report describing the co-design methodology and process and the agroecological innovations	Number of implementation reports Number of Agroecological innovations co-designed in each ALL	Global (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Field visit reports, reports of participatory co-design workshops, protocol for the AEI co-design	Field visits, meetings to assess progress on co-design of AEI, and field days	Every six-month	NA	NA	One implementation report per ALL produced every year, and one final implementation report in Year 3	2024

		(AEI) co-developed									
Output 1.5	Other agroecological innovations at the food system level required to support implementation of agroecological practices identified	Scaling Innovation Package report including the participatory identification of a set of technological and institutional innovations that together support agroecological transitions	Number of reports	Global (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Minutes from multi-stakeholder workshop to identify innovations and other support work required in agroecological transitions. List of participants	Multidisciplinary and multi-stakeholder consultation workshops	Twice (i.e., two workshops per ALL)	NA	NA	One Innovation Package report per ALL	2023
Output 1.6	Early and projected effects of agroecological practices in productivity, environmental, social and economic aspects	Publication with projected impacts, and tradeoffs, of co-designed Agroecological practices	Number of publications	Global (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Monitoring data from WP2, modeling results, participatory evaluations	Modeling exercises, field monitoring, participatory monitoring	Twice	NA	NA	One publication with global projection of AE effects per ALL One publication synthesizing impact projection across ALLs	2023
Output 1.7	Willingness to or determinants of (existing) adopting agroecological practices assessed to inform the co-design of AEI	Technical report and scientific publications (open access) in Thompson journal with impact factor	Number of publications	Global (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Survey database, focus groups' reports	Research protocol Survey and focus group discussion including gender disaggregation	Monthly, starting in March 2022 for maximum 3 months	NA	NA	1 technical report per ALL 1 scientific publication with the global meta-analysis	2022, 2023
Output 1.8	Estimates of producer preferences for individual practices and of idiosyncratic and external effects on such preferences obtained	Number of publications showing results on farmers' preferences of for the different co-designed AEI	Number of peer-reviewed publication Number of datasets Number of technical report Number of	Global (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Survey database	Research protocol (SOPs – Survey and focus group discussion including gender disaggregation)	Monthly, starting in July 2023 for maximum 6 months	NA	NA	1 -technical report with specific analysis per ALL 1 peer-reviewed publication with the	2024

			publications and published dataset r							global meta-analysis, 1 dataset published	
Outcome 1.1	Women and men small-scale farmers participate inclusively in a network of ALLs that bring together farmers, researchers, and other food system actors in a multi-stakeholder environment to equitably co-design and test context-relevant agroecological innovations	Number of short-term monitoring and learning report per ALL	Number of reports	Global (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Monitoring templates, dashboard, list of participants, co-design meeting reports, field reports, disaggregated data by gender	Survey including participants who have not been involved in the Initiative's activities, in addition to the participants in the Initiative	Twice (at the end of Yr2 and Yr3)	Ten communities involved in a recently established process to build an ALL (Burkina Faso), 0 in the other targeted sites 0 farmers benefiting from innovations created in ALLs 1 private-sector company actively engaged in the co-design of agroecological innovations (in Peru). 0 in the other targeted countries (interested ones already identified during the consultation process)	2021	At least 7000 women and men directly involved in the co-designing of AEI in the ALLs, per country At least 2.2 M farmers, similar to those targeted in the ALLs, with access to tools and innovations models produced in the AE-I At least 35 private sector companies /investors participate actively on the co-design of Innovation Packages for scaling	2024
WORK PACKAGE 2: Evidence-based agroecology assessments											
Output 2.1	Baseline — current conditions of agricultural systems of small-scale farmers in each ALL	Reports from each ALL	Project Reports	7 ALLs	Existing literature and input from farmers and other stakeholders	Literature review, key informant interviews and ALL participation	Once (in each ALL)	N/A	N/A	7 reports	2022
Output 2.2	Holistic assessment framework	Report + website with a	Project report + website	Global	Previous assessment frameworks	Secondary data and surveys	Annually	N/A	N/A	1 report + website	Mid-2023

	(biophysical/socio-economic metrics and indicators — including financial metrics — to reflect true cost and benefits) tested, validated, and applied in each ALL, including MELIA relevant indicators	comprehensive list of metrics and indicators including their description			and indicators, analyses, and computer model outputs						
Output 2.3	Guidelines on holistic assessment framework	Guidelines (hardcopy and online)	Guidelines published	LMICs/ Global	Initiative records			NA	NA	1 guideline report	2023
Output 2.4	Awareness raising workshops and lessons learned seminars for extension workers and multi-stakeholder platforms (WP1)	Workshops + seminars	Workshops/ seminars List of participating extension workers and stakeholders (i.e., including contact details)	7 ALLs	Workshop/ seminar reports — including gender disaggregated attendance records	Results from the application of the holistic framework Guidelines on the holistic framework	Annually	NA	NA	7 workshops/ seminars (one in each ALL) 1 Global seminar	2024
Output 2.5	Knowledge base of the context-specific social, environmental, and economic impacts of agroecological interventions (biophysical and non-biophysical) and comparison with alternatives derived from across all 7 ALLs	Web-based knowledge	Website containing comprehensive inventory of impacts and their description	7 ALLs	Project reports and analyses of field and secondary data	Participatory processes and biophysical monitoring and surveys	Continuous	NA	NA	1 database	End 2023 and updated thereafter
Outcome 2	Researchers, farmers, communities, policymakers and investors use knowledge gained from science-based assessments, implemented in all	US\$	Level of investments in agroecological innovations	7 ALLs	Records of institutional ALL activities; Response from farmers and institutions	Interviews, stakeholders dialogues and activity documentation, MELIA monitoring documentation	Annual	Determined in inception phase (6 months)	2022	Average 25% increase in agroecological investment across 7 ALLs	2024

	the living labs, to implement agroecological innovations that are sustainable and enhance resilience										
WORK PACKAGE 3: Inclusive business models and financing strategies											
Output 3.1	Value chain maps and analyses carried out, including the identification of system-level binding constraints and leverage points for the adoption of practices and business models with potential for the proposed agroecological transitions	Technical report that includes value chain map and analyses	Number of reports	Sub-national "territory": one in each selected country (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Interviews with key informants, reports of value chain multi-stakeholder workshops, map of selected value chains in each ALL	Interviews, secondary information gathering, workshops	Once (in each ALL)	NA	NA	One technical report per ALL	2022
Output 3.2	Current business models and financial modalities identified and classified according to how they perform regarding agroecological principles	Technical reports and peer-reviewed publications analyzing current business models configuration and core values, contrasting against agroecological principles	Number of technical reports Number of peer-reviewed publications	Sub-national "territory": one in each selected country (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Interviews with trading alliances stakeholders, reports of workshops for characterizing selected business models	Interviews, secondary information gathering, workshops	Once (in each ALL)	NA	NA	One technical report per ALL One peer-reviewed publication characterizing and contrasting business models across ALLs	2023
Output 3.3	Business model canvases developed for selected existing business models, including the identification of challenges and opportunities for the trading partners	Report in business model canvas	Number of reports	Sub-national "territory": one in each selected country (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Reports of workshops conducted to elaborate the business canvas together with the trading partners	Business canvas workshop	Once (in each ALL)	NA	NA	One technical report per ALL	2022

Output 3.4	Cost-benefit analyses that capture the profitability of innovative business models with that of current (conventional) business models carried out	Report containing CBAs and other financial metrics for selected business models	Number of reports	Sub-national "territory": one in each selected country (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Secondary information provided by trading partners, results of focus groups to characterize costs and benefits	Secondary information review, focus groups	Once (in each ALL)	NA	NA	One technical report per ALL	2022
Output 3.5	New or redesigned business models co-developed under agroecological principles	Business model design document agreed among parties	Number of documents with business models designs	Sub-national "territory": one in each selected country (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Reports from co-design meetings	Workshops, participatory methods for business models design (e.g., LINK)	Monthly (6 co-design workshops in 6 months)	NA	NA	At least one business model design document per ALL	2023
Output 3.6	Implementation plan established for continuous improvement of innovative agroecological business models	Number of implementation plans for continuous improvement of agroecological business models	Number of implementation plans	Sub-national "territory": one in each selected country (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Reports of workshops for prototyping agroecological business models and define improvement cycles	Workshops with trading partners	Monthly (2 workshops per business models in 3 months)	NA	NA	One implementation plan per co-designed business model in each ALL	2024
Output 3.7	Investment cases developed to feed dialogs with interested private and public investors	Number of investment cases tested with potential investors to support agroecological transition in ALLs	Number of cases	Sub-national "territory": one in each selected country (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Financial analyses, CBAs of practice, business models co-designs, financial gap analyses, assessment of benefits associated to	Secondary information gathering, financial simulations,	Once and during 3 months per investment case	NA	NA	At least one investment case per ALL	2024

					agroecological innovations						
Output 3.8	Financial mechanisms for agroecological business models adapted, improved and/or co-designed based on the investment cases	Report with actions designed together with public sector and non-public funder oriented to support agroecological transitions	Number of reports	Sub-national "territory": one in each selected country (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Current financial modalities assessment, reports of meeting with funders and public entities, workshop reports	Secondary information, workshops, interviews	Once and during 4 months in each ALL	NA	NA	One report per ALL	2024
Outcome 3.1	Investors, trading partners, NGOs, and farmer organizations participate in at least one strategic business partnership established in each ALL that leads to the co-development or adaptation of business models linking agroecological innovations to markets	New business partnerships established and functioning with the list and description of participating actors	Number of new business partnerships established and functioning in each ALL	Sub-national "territory": one in each selected country	Records of ALL activities Response from farmers, SMEs and institutions, agreement documents among business partners	Interviews and MELIA monitoring dashboard and documentation	Annual	0	2021	7 (one per selected country)	2024
Outcome 3.2	Investors, public sector, farmer organizations co-design or adapt financial mechanisms that support agroecological innovations	Innovative finance models and describing participating actors	Number of innovative finance models established and functioning in each ALL	Sub-national "territory": one in each selected country	Records of ALL activities Response from farmers, SMEs and institutions, investment cases documents	Interviews, financial model design documents, workshop minutes	Annual	0	2021	7 (one per selected country)	2024
WORK PACKAGE 4: Strengthening the policy- and institutional-enabling environment											
Output 4.1	Identified policies that favor or limit agroecological transitions, as well as enabling	Policy analysis report	Number of reports	National and sub-national "territory": one in each	Policy inventories, policy workshops report, agroecologi	Desk reviews of secondary data, interviews	Once	NA	NA	One report per ALL	2022

	opportunities for policy integration			selected country	cal transitions agreed in each ALL						
Output 4.2	Opportunities for improving the potential of local institutions and governance structures to catalyze agroecological transitions identified, discussed and agreed with food system actors in each ALL	Annual reports containing analysis of local institutions and emerging institutional innovations that support the agreed agroecological transition Multistakeholder platforms (MSP) established in each territorial ALL	Number of reports Number of MSP established	Sub-national "territory": one in each selected country	MSP meeting reports Monitoring reports of MSP dialogues Reports about local institutions	Multistakeholder platform dialogues, institutional analyses	Quarterly	NA	NA	One annual report per ALL One MSF per ALL	2022-2024
Output 4.3	Policy framework and tracking tool developed	Policy tracking tool with clear indicators to track progress, from policy development to improved enforcement	Number of tools developed and applied in ALLs Number of annual reports describing results of the application of the tool	National and sub-national "territory": one in each selected country	Tool design and user manual Reports from the application of the tool	Policy analysis documents, policy workshop minutes, interviews	Six-monthly	NA	NA	One global tool developed and applied in each ALL One annual report per ALL	2022-2024
Output 4.4	Ex-ante assessment of the effects of scaling agroecological transitions on government socio-economic and environmental priorities and commitments (e.g., NDC, CBD, etc.)	Technical report on the anticipated contribution of scaling agroecological innovation on national environmental and socio-economic goals (GHG emissions)	Number of technical reports Number of documents for policymakers Number of peer reviewed	National (in each selected country)	Database of agroecological innovations monitoring Policy workshops National commitments and plans (e.g., NDC,	Modeling, analysis of scaling potential	Once	NA	NA	One technical report per country One document for policymaker per country	2024

		reduction, adaptation, social equity, income) Document for policymakers Peer reviewed scientific publication	journal articles		NAPs, SDG reports)					One global scientific article	
Output 4.5	Recommendations and action plans for policy and institutional changes in ALL countries or regions.	Action Plan document created with and endorsed by key stakeholders	Number of action plans	National and sub-national "territory": one in each selected country	Minutes of policy workshops, MSP meeting reports, report from analysis of institutional arrangement	Workshops, interviews, MSP meetings	Monthly - for 4 months	NA	NA	One action plan per country	2024
Output 4.6	Mechanisms for better coordination and adaptation of existing local institutions to enable agroecological transitions agreed among actors	Document with coordination and governance procedure agreed among MSP stakeholders	Number of documents	National and sub-national "territory": one in each selected country	Minutes of MSP meetings, methodological framework to guide local institutions analyses and dialogs	Workshops, interviews, MSP meetings	Monthly - for 10 months	NA	NA	One Document per country	2023
Outcome 4.1	National and regional policymakers and sectoral organization representatives co-develop and promote recommendations to effectuate the horizontal(across-sectors) and vertical/(across-scales) policy integration required to	National or local policy promoting agreed action for supporting agroecological transition in each country	Number of national/local policy entities explicitly promoting actions	National and sub-national across 7 countries	Reviews of national and sub-national policies/ Strategies, Policy meeting reports	Interviews/ MELIA studies, outcome monitoring documentation	Annual	Determined in inception phase (6 months)	2022	2 national policymakers and 4 local policymakers	2024

	mainstream agroecological principles										
Outcome 4.2	Local organizations and authorities co-develop, strengthen, or adjust local institutions and governance mechanisms to better support agroecological transitions in each ALL	Institutional and governance arrangements	No. of key local government and non-government institutions that explicitly establish or alter institutional or governance arrangements to support agroecology interventions (e.g., farmer cooperatives)	National and sub-national across 7 countries	Records of ALL activities Response from farmers, SMEs, government and non-government institutions	MSP meeting reports, interviews, and MELIA studies	Annual	0	2022	4 local institutional arrangements	2024
WORK PACKAGE 5: Understanding and influencing agency and behavior change											
Output	An inventory of research intervention, agroecological science, practice, and social movement successes and failures to engender agency and behavior change towards agroecological transitions, synthesized into key lessons on the change process that can drive agroecological transitions	Data asset	Number of briefs	Global (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Initiative records	Secondary information review, interviews	Every 1.5 years	NA	NA	1 brief per country where WP5 is implemented	End 2022/Q1 2023
Output	Analysis of key determinants and drivers of agency and behavioral	Data asset	Number of peer-reviewed papers and	Global (Burkina Faso, Tunisia,	Initiative records	Interviews, surveys, focus groups	Every 1.5 years	NA	NA	1 brief per country where WP5 is	2023

	factors of each actor group in all ALLs that influence inclusive agroecological transitions; to be incorporated in strategies (WP4) and investment plans (WP3)		number of briefs	India, Lao PDR, Kenya, Peru, Zimbabwe)						implemented 1 peer-reviewed paper	
Output	Key interface and institutional reconfigurations that support local agroecological innovation are identified and disseminated to agricultural innovation researchers, practitioners, and producer organizations	Innovation	Number of innovations	Global	Initiative records	Participatory methods, workshops in MSP	1.5 years	NA	NA	2 innovations	2024
Output	Key factors to engender cooperative decision-making and widespread and cross-group behavior change are identified and applied in ALL food systems institutions	Innovation	Number of innovations	Global	Initiative records	Interviews, surveys, focus groups	1.5 years	NA	NA	2 innovations	2024
Output	Agency and behavior change research results integrated in the Initiative's MELIA planning and tools	Data asset	Analysis and evaluation tools	Global	Initiative records	TOC review and reflections (learning component of MELIA)	1.5 years	NA	NA	1 tool integrated in MELIA for Initiative	2023
Output	Identification and synthesis of key roles of agroecological science, practice, and social movements in enabling agency and behavior change to support agroecological transitions; for	Data asset	Number of peer-reviewed papers	Global	Initiative records	Interviews, surveys, focus groups	1.5 years	NA	NA	1 peer-reviewed paper	2023

	incorporation in strategies and investment plans (developed in WP3 and WP4)										
Outcome 5	Scientists, funders, policymakers, business partners, and civil society, re-orient or adjust their strategies and action plans based on knowledge gained from scientific studies about the mechanisms underpinning behavior change and capacities of farmers, business partners, and consumers to implement agroecological transformation	Policy	Number of strategies and action plans by local and national institutions involved in ALLs that include enablers for agroecological behavior change or that include innovations (for institutional reconfigurations, or for cooperative decision-making and/or cross-group behavior change)	Global (Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia, and Zimbabwe)	Records of strategies and investment plans developed or revised during the project (and institutional ALL activities); Response from institutions	Review of institutional ALL participant documents. Interviews of participating institutions, MELIA outcome monitoring report	Annual	0	2022	7 (Note: expect 1 strategy and/or action plan per country by 2024)	2024
Innovation Packages and Scaling Readiness											
Output	Evidence-based Scaling Strategies (Standard Track)	Number scaling readiness assessments that have analyzed and validated AE-I Innovation Packages	Number of Scaling Readiness Studies	In at least four of the following countries: Burkina Faso, India, Kenya, Lao PDR, Peru, Tunisia or Zimbabwe	Reports of scaling readiness assessment	Focal groups, business model agreement (WP3), performance assessment of innovations (WP2)	Once	0	2022	At least 4, in selected ALLs	2024

6.2 MELIA plan

a. MEL

Monitoring: AE-I is designed to build scientific evidence on the performance of agroecological innovations (practices, business models, and other institutional arrangements). This is reflected in the core research questions to be investigated. WP2's multidimensional assessment framework (WP2/Output 2.2), for example, will be used to rigorously document the effects of co-designed innovations across ALLs in socio-economic and environmental dimensions, while WP1 (ALLs) and WP3 (business models) will use the framework to set a baseline for tracking their contribution to selected monitoring indicators and metrics. These indicators and metrics will combine both those prioritized by ALLs stakeholders and those defined for the One CGIAR Action Areas (e.g., Indicator STi 1.3 - Measurable implications of adoptions such as production, profitability, input use, product quality and associated price, environmental and health damage avoided, livelihood, employment and so forth"). This will also allow us to assess the contribution of the AE-I to each of the Impact Areas ([Section 5](#)).

To complement the rigorous WP2 science-based assessments, the Initiative's MELIA team will develop a tracking tool (compatible with the One CGIAR System Dashboard) to monitor: (a) delivery of WP outputs (detailed in [Section 6.1](#)), (b) the reach of the Initiative in terms of participants involved in the co-design of innovations and training, (c) innovative tools emerging from WPs, and Initiative-level outcome indicators ([Section 6.1](#)) associated with (i) concrete business partnerships that support agroecology (WP3), (ii) adoption of policy recommendations favorable to agroecological transitions (WP4), (iii) reorientation or refinement of actors' action plans/strategies to facilitate adoption and scaling of agroecological principles in food systems (WP5), and (iv) co-design and testing of agroecological practices in the targeted territories.

Evaluation: The MELIA team will also determine the contribution of the Initiative outcome indicators to the Action Area selected indicators (detailed in [Section 6.1](#)). In this way, the MELIA team will play a key role in nesting the Initiative's cumulative contribution with the Action Area level, by documenting progress along the impact pathway, providing evidence of the influence of AE-I outputs to outcomes via specific documents (formal agreements, agreed workplans, and action plans between actors and field visit reports) combined with operational data (e.g., number of beneficiaries, hectares under improved management, trainings), surveys, and interviews.

Learning:

- MELIA will contribute to understanding the causal mechanisms behind the generation of Initiative-level outcomes, and the role of policies and business models.
- MELIA team and WP5 team, will formally review AE-I progress against the Initiative TOC every six months, to assess how proposed outputs are contributing towards proposed outcomes, and to determine to what extent assumptions behind the Initiative's TOC are confirmed or rejected by the behavioral change results from WP5. This information will be used to adapt the application of WP activities in a way that effectively targets determinants

and drivers of behavioral change in key actors to achieve the desired outcomes (i.e., farmers, business model partners, and policymakers).

- One of the main assumptions of AE-I is that user-centered environments for co-innovation, such as the ALLs, are effective in developing innovations that will be taken up by scaling partners. AE-I will implement a rigorous systematic process that, against a baseline of the scaling status of agroecological innovations and social inclusion, tracks the contribution of co-innovation processes in ALLs to scaling readiness, and gender and social inclusion.
- WP1 will assess the determinants of adoption of existing agroecological practices in areas with the presence of early adopters. This study will provide the opportunity for learning from ongoing and previous work in the ALLs and provide insights for the co-design of agroecological practices and business models.

b. Impact assessment

Ex-post assessments: Three of the seven ALLs will be selected for collection of baseline data (from the start of the AE-I) for an ex-post impact assessment of the impact of key innovations (practices and business models) co-developed in the ALLs after the end of the Initiative (assuming funding allows). Using randomized controlled trials and/or quasi-experimental evaluation methods, depending on the nature of the interventions, this study will compare small-scale farms, households, and territories in similar socioecological environments that were and were not (counterfactual) included in the ALLs. The results will provide insights for future designs of agroecology programs within the CGIAR and beyond and verify the contribution of AE-I to CGIAR's common impact indicators beyond the Initiative's lifespan.

Ex-ante assessments: Before 2024, AE-I will conduct two ex-ante assessments, using environmental and economic models, and agent-based modeling, to determine the long-term benefits of AE-I for/on: (i) improved business models to support agroecological transitions (WP3), and (ii) the effect of scaling agroecological innovation on indicators that contribute to countries' international commitments (climate-change adaptation and mitigation indicators for NDC and NAPs) and selected SDGs. This work will feed policy dialogs (WP4) and enable possible tradeoffs between environmental and socio-economic indicators to be determined.

6.3 Planned MELIA studies and activities

Type of MELIA study or activity	Result or indicator title that the MELIA study or activity will contribute to.	Anticipated year of completion	Co-delivery of planned MELIA study with other Initiatives	How the MELIA study or activity will inform management decisions and contribute to internal learning
Monitoring activity: Development of a monitoring tracking tool	# people benefiting from relevant CGIAR innovations # women benefiting from relevant CGIAR innovations # youth benefiting from relevant CGIAR innovations # people benefiting from climate-adapted innovations # \$ climate adaptation investments # ha under improved management	Design of the tracking tool: 2022 Continued application of the tool until 2024	During Inception Phase: scouting to identify which of the other Initiatives are interested in this tool, to then conduct a joint development.	This tool will assist in tracking and consolidating information to assess the reach of the Initiative in terms of # people benefiting from the co-design of AE innovations and training, innovative tools emerging from WPs, agreements reached with scaling partners, and on monitoring emerging outcomes.
Monitoring and learning study: Outcome causality assessment	Contributes to Action Area outcome: Demand and scaling partners use knowledge gained from science-based assessments to implement agroecological options that are economically viable, environmentally- sound and socially inclusive Initiative and Work Package outcomes, outputs and indicators	Two reports: by 2023, and by 2024	Collaboration with other systemic Initiatives (e.g., MiTiGATE+, Nature-Positive Solutions, NEXUS, SHIFT) will be proposed during the inception phase to jointly design a well-structured assessment for analyzing causal mechanisms driving outcome generation.	This study will investigate the causal mechanisms behind the delivery of planned outcomes.
Learning: Systematization of ALLs' experiences and practices	Contributes to Action Area outcome: Demand and scaling partners use knowledge gained from science-based assessments to implement agroecological options that are economically viable, environmentally-sound, and socially inclusive. Initiative and Work Package outcomes, outputs and indicators	2024	TBD	The application of rigorous systematization method of ALLs' experiences and process will aim at improving research for innovation project based on critical reflection and interpretation of lessons learnt from practices.
Ex-ante assessment of the long-term benefits of the implementation of the agreed improved business models (in WP3) to support agroecological transitions	# people benefiting from relevant CGIAR innovations # women benefiting from relevant CGIAR innovations # youth benefiting from relevant CGIAR innovations # ha under improved management	2024	NA	This work will guide the Initiative team when preparing for policy dialogs (in WP4) and will provide lessons learned on the potential of business models with the private sector to deliver long-term development impacts.
Ex-ante assessment of the effect of scaling agroecological innovation in selected countries, on indicators that contribute to countries international commitments (i.e., NDC and NAPs) and selected SDGs.	# people benefiting from relevant CGIAR innovations # women benefiting from relevant CGIAR innovations # youth benefiting from relevant CGIAR innovations # tons CO2 equivalent emissions # people benefiting from climate-adapted innovations # ha under improved management # ha deforestation	2024	NA	Will provide insights for the discussion with policymakers about the potential of agroecological approaches to achieve country level development goals. Will provide key learnings to the Initiative team on the scope of influence of agroecological approaches, on development indicators key to transform food systems.
Baselines for ex-post impact assessment and elaboration of the assessment methodological design (see section 6.3 for explanation)	# km ³ consumptive water use # Tg nitrogen application	2023	NA	Three of the seven ALLs will be selected for the collection of baselines for an ex-post impact assessment to assess the impact of key innovations (practices and business models) co-developed in the ALLs after the end of the Initiative.
Scaling Readiness Assessment Study	Number of Initiative Innovation Packages that have undergone evidence-based and quality controlled/validated Scaling Readiness assessments informing innovation and scaling strategies	2023 and 2024. 4 studies	TBD	The study will inform the design, implementation and monitoring of an innovation and scaling strategy, and scaling readiness metrics can feed an optional Initiative innovation portfolio management system.

7. Management plan and risk assessment

7.1 Management plan

Food systems are complex, dynamic, social-ecological systems that make the impact of interventions difficult to predict. AE-I will be managed following an adaptive process that systematically tests TOC assumptions to learn and adapt. An AE-I leadership team will oversee the overall management of the Initiative. This team, consisting of the Initiative leader and deputy leader, WP leaders, country leads, and MEL lead, will be responsible for the revision of Initiative and WP TOCs, as well as the MELIA plan, scaling readiness process and risk management plan, in conjunction with partners and stakeholders, by month 6 of project inception. These will be revisited every six months to evaluate progress against milestones and targets and to validate/revise assumptions. The holistic assessment framework (WP2) will provide disaggregated (e.g., by gender and age) data for evaluation of impact and progress in each ALL. Periodic studies undertaken as a contribution to the MELIA ([section 6](#)) will provide additional detailed data/information on: i) testing of agroecological practices; ii) the impact of business models and policies; iii) the extent to which assumptions made in the TOCs are valid (or not). We will report on progress against MELIA targets annually. Based on feedback and information gained we will adjust TOCs, MELIA, scaling readiness and project plans (including necessary budget lines), as well as project activities, in the annual plan of work and budget. The projected benefits and assumptions underpinning them will be revised annually based on progress made, additional data available, and enhanced understanding of uptake in each ALL.

7.2 Summary management plan Gantt table

Initiative start date	Lead organization	Timelines												Description of key deliverables
		2022				2023				2024				
Work Packages	Lead organization	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	
Work Package 1: Transdisciplinary co-creation of innovations in Agroecological Living Labs (ALLs)	Lead: CGIAR/Co-lead: CIRAD			1	2						3	4		1. Key practices that require adaptation or change with agroecological approaches identified. 2. Other agroecological innovations required for implementing agroecological practices at scale identified. 3. Agroecological practices co-developed (design and testing) with farmers, scientists, and extension agents. 4. Estimates of producer preference for agroecological practices and of external effects on such preferences obtained.
Work Package 2: Evidence-based agroecology assessments	Lead: CGIAR Co-Lead: TBD		1	2							3		4	1. Co-designed Assessment Framework (biophysical/socio-economic indicators and metrics) 2. Baseline: current conditions of agricultural systems of small-scale farmers in each ALL characterized. 3. Comparison of agroecological interventions with alternatives over time. 4. Key findings disseminated and promoted to farmers, food system actors, including consumers and policymakers for each ALL.
Work Package 3: Inclusive business models and financing strategies	Lead: CGIAR Co-lead: TBD				1	2			3				4	1. Selected value chains, business models, and investment modalities identified and classified according to how they perform regarding agroecological principles, and for their constraints and leverage points for agroecological transitions. 2. Visions for sustainable business models and VCs developed in a participatory and inclusive manner 3. New and redesigned inclusive business models developed with business partners based on agroecological principles. 4. Financial mechanisms for agroecological business models (re) designed.
Work Package 4: Strengthening the policy- and institutional-enabling environment	Lead and co-lead: CGIAR				1		2		3				4	1. Policies that favor or limit agroecological transitions and enabling opportunities for policy integration identified and analyze for their effectiveness. 2. Local institutions and governance structures analyzed at the light of agroecological principles, and opportunities for improving their potential to catalyze agroecological transitions identified. 3. Recommendations and action plans for policy integration and institutional changes in ALL countries or regions. 4. Mechanisms for better coordination and adaptation of existing local institutions (informal and formal rules, norms, institutional arrangements) to enable agroecological transitions discussed and agreed among actors.
Work Package 5: Understanding and influencing agency and behavior change	Lead and co-lead: CGIAR		1	2					3				4	1. An inventory of agency and behavior-change successes and failures of agroecological interventions synthesized into key lessons on the change process that can drive agroecological transitions. 2. Expert and key informant elicitation and scoring/prioritization of agroecological innovations (practices, business models, institutional arrangements) of focus conducted. 3. Trials of approaches that motivate change in behavior of food system actors in each ALL. 4. Key determinants and drivers of agency and behavioral factors of each actor group that influence agroecological transitions identified and incorporated in strategies and investment plans.
Innovation Packages & Scaling Readiness	CGIAR								1				2	1. Two Scaling Readiness Assessments informing innovation and scaling strategies of Innovation Packages in two countries. 2. Two scaling

															readiness assessments informing innovation and scaling strategies in two other countries.
MELIA	CGIAR		1		5			2	4			3	2		1. Monitoring: Development of a monitoring tracking tool. 2. Monitoring: Outcome causality assessment. 3. Learning: Systematization of ALL experiences and practices. 4. Ex-ante IA: Ex-ante assessment of the effect of scaling agroecological innovation in selected countries. 5. Ex-post IA activity: Baselines for ex-post impact assessment and elaboration of the assessment methodological design.
Project management	CGIAR	1 2		3			3		4	3				4	1. Kick-off meeting and inception phase to review TOC, MELIA plan, scaling readiness plans, risks management plan, and design detailed workplans per country. 2. Partners contracts. 3. 6-monthly progress review along the Initiative's TOC and adjustment of activities as required. 4. Annual technical and financial reports.

Notes:

1. Country leads: Kenya (ICRAF-CIFOR), Zimbabwe (CGIAR), Tunisia (CGIAR), Burkina Faso (CIRAD), Peru (CGIAR), Laos (CGIAR), India (CGIAR).
2. Each Work Package's activities will be implemented by a team that integrate capacities from various centers. Thus, Work Package's constituency follow the capacity integration principle of the One CGIAR.

7.3 Risk assessment

The Initiatives team undertook a risk assessment exercise to identify and evaluate the main risks and mitigating actions for the Initiative. Risks considered included around science, cohesion (including intended and unintended consequences of technologies/innovations for natural resources, GHG emissions, and social and economic aspects), legacy work, partnerships, talent, operational, ethical, and legal and other. At this phase the risk assessment is used to highlight areas of concern and improvement recommendations for AE-I. It also provides visibility to different bodies that is needed from a good-governance perspective in line with the Risk Management Framework of the CGIAR System. Following Initiative's approval, the risk assessment will be integrated into the Initiative's workplan for continuous monitoring and management. Main risks identified are set out as follows:

Top 5 risks to achieving impact	Description of risk	Likelihood	Impact	Risk score Likelihood x Impact	Opportunities
(WP1) Lack of capacity to address or manage for the conflicting claims or interests of different stakeholders (farmers, value chain actors, and policymakers) when consensus is necessary for adoption	Stakeholder actors may experience difficulties in finding a common ground of action for the agroecological transition in the ALLs because of conflicting interests.	2	3	6 (medium)	<u>Proposed mitigation measures:</u> 1. Create an enabling environment using participatory approaches that engage all stakeholders in planning from the beginning. 2. Put in place a conflict management system and provide solutions to complex problems.
(WP2) Lack of learning from prior evaluations and assessments	It may be challenging to collate, curate, and synthesize information from the many local Initiatives and the hundreds of published studies to robustly select indicators and metrics and capture the impact of agroecology versus BAU on sustainability outcomes.	3	2	6 (medium)	<u>Proposed mitigation measures:</u> 1. Set up data management plan to centralize and streamline data collection and classification. 2. Engage closely with local partners to ensure locally important indicators and metrics are prioritized.
(WP3) Lack of meaningful partner engagement in Initiative design and delivery	It may be challenging to obtain buy-in from some key private-sector partners to shift to more inclusive business models, because they stand to lose in the short term or are resistant to change.	4	3	12 (medium)	<u>Proposed mitigation measures:</u> 1. Provide evidence of businesses that have successfully transitioned, e.g., through peer-to-peer learning, showcasing case studies from other contexts. 2. Incorporate measures of business performance into the evaluation framework developed for WP2. 3. Use a 'flat' facilitation style when convening public, private and other stakeholders to encourage cross-sector participation and trust for more fruitful relationships.
(WP4) Failure to attract, engage, or retain the interest and participation of women, youth, IP,	In some cultural contexts it may be hard to increase the equity and agency of women and youth in the co-design	3	3	9 (medium)	<u>Proposed mitigation measures:</u> 1. Ensure that strategies and actions for ending discrimination at all levels and stages of the project cycle; taking into consideration men, women and youth's

and other less well-represented social groups	process because of entrenched cultural norms that exclude them from decision-making processes				needs, desires, ambitions when decisions are made, and resources are allocated. 2. Co-create with youth and women an attractive program to support agribusiness that apply agroecological principles and co-create networks around them, in view of contributing to the increased sustainability of food systems and youth and women employment. 3. Contribute to gender equity by deliberate, contextualized action, and appropriate accompanying interventions, such as women's self-organization, improved access to resources, and education around both agroecological practices and sociopolitical equity.
(WP5) Ineffective operationalization of supporting policies hinders the accessibility and uptake of innovations	WP5 may identify barriers to behavior change that cannot be readily surmounted even by willing actors	3	4	12 (medium)	<u>Proposed mitigation measures:</u> 1. Co-develop short, medium and long-term behavioral change strategies that accommodate the complexity and time required to overcome some barriers 2. Engage actors at multiple levels and across sectors to increase chances that the right actors are in the room 3. Seek collaborations with other Initiatives and networks working to find solutions to the most challenging issues

8. Policy compliance, and oversight

8.1 Research governance

“Researchers involved in the implementation of this Initiative will comply with the procedures and policies determined by the System Board to be applicable to the delivery of research undertaken in furtherance of CGIAR’s 2030 Research and Innovation Strategy, thereby ensuring that all research meets applicable legal, regulatory and institutional requirements; appropriate ethical and scientific standards; and standards of quality, safety, privacy, risk management and financial management. This includes [CGIAR Research Ethics Code](#) and to the values, norms and behaviors in CGIAR’s [Ethics Framework](#) and in the [Framework for Gender, Diversity and Inclusion in CGIAR’s workplaces](#).”

8.2 Open and FAIR data assets

The Researchers involved in the implementation of this Initiative shall adhere to the terms of the [Open and FAIR Data Assets Policy](#). Furthermore, the AE-I will work to align with the OFDA Policy’s Open and FAIR requirements, ensuring: (i) rich metadata conforming to the [CGIAR Core Schema](#) to maximize findability, including geolocation information where relevant and possible, adhering to privacy policies; (ii) accessibility to the data collected by AE-I’s researchers and therefore utilizing unrestrictive, standard licenses (e.g., [Creative Commons](#) for non-software assets; General Public License ([GPL](#))/Massachusetts Institute of Technology ([MIT](#)) for software); (iii) wider access to data and written outputs (e.g., articles, reports and other documentation) by using open repositories with proper translations, or available in multiple languages, and requiring minimal data download to take into consideration the limited internet connectivity of local stakeholders in certain research areas; (iv) interoperability by annotating dataset variables with ontologies where possible (controlled vocabularies where not possible); (v) compliance of data-sharing and private-policies of national and local partners (i.e. governmental and research institutions, NGOs, etc.); and (vi) adherence to the [Research Ethics Code](#) (Section 4) relating to responsible data (through human subject consent, avoiding personally identifiable information in data assets and other data-related risks to communities and local partners).

9. Human resources

9.1 Initiative team - table

Category	Area of expertise	Short description of key accountabilities	FTE
INITIATIVE MANAGEMENT UNIT			
Research	Ecology, multidisciplinary research, agricultural sciences	Initiative Lead - Initiative planning, implementation, reporting.	1
Research	Environmental sciences, multidisciplinary research	Deputy lead - Supports Initiative coordination and reporting	5
Research Support	Research management	Process manager - Supports Initiative leadership in the day-to-day operation and reporting	1
Research Support	Project management	Supports Initiative leads in administrative aspects (sub-contracts and budget monitoring, logistic support)	6
Research/Support	Monitoring and Impact Assessment Experts	Leads the implementation of the MELIA plan in coordination with WP Leads	5
Research	Scaling Readiness Expert	Implements Scaling Readiness Assessments in coordination with Initiative and WP leads	3
WORK PACKAGE 1			
Research	Social Sciences	WP1 Lead - Participatory research processes and International ALL Network Coordination	5
Research	Social Sciences	Country coordinator of ALL: Multi-stakeholder participatory processes, participatory methods, stakeholder engagement	5
Research	Social Sciences	Junior expert on participatory research methods, data collection	4
Research	Economics, Statistics	Research assistant -data consolidation, secondary information collection, field work	4
Research	Agronomy	Mid-career Agronomist - Co-design of agroecological practices in targeted agricultural systems	4
Research	Economics	Mid-career Economist - Support co-design of agroecological practices with economic analyses	3
Research	Quantitative and qualitative data analysis	Research assistant - Consolidation of information to assist co-design of agroecological practices	4
Research	Livestock sciences	Mid-career scientist - Co-design of agroecological practices in livestock systems (in Burkina Faso and Tunisia)	2
Research	Forages scientist	Mid-career scientist - Forages management, co-design of agroecological practices (for Tunisia and India)	2
WORK PACKAGE 2			
Research	Ecologist, multidisciplinary studies	WP2 Lead (and co-lead <i>tbd</i>)- Multidisciplinary experts in indicator/metrics development, application, and tradeoffs analyses	5
Research	Agronomist	Senior expert in development of metrics to assess productivity factors, expert on agroecological practices	3
Research	Economist	Senior expert, economic performance assessments (for agricultural practices, business models)	3
Research	Social Sciences, Gender and social inclusion	Assessment framework and metrics for gender, livelihoods, and social inclusion	3
Research	Water management, hydrologist	Hydrological assessments, water balances, water footprints with and without agroecological practices	3
Research	Soil Sciences	Design of soil health assessments protocol, indicators, and metrics	3
Research	Ecology, biodiversity studies	Design of metrics for (agro)biodiversity assessments, strategies for diversifying systems	2.5
Research	Environmental Sciences	Environmental modeling across scales of effects of agroecological innovations in water, land, ecosystem services	4
Research	Biologist or Agronomy	Co-design of strategies to manage trees in diversified systems, agroforestry systems	2.5

Research	Social Sciences	Agent-based modeling to understand changes in stakeholders' interactions and decisions	2.5
Research	Nutritionist	Expert in household-level diet diversity assessments	
Research	Ecologist	Junior scientist for the application of holistic assessment framework in each ALL (x 7)	5
Research	Agronomy	Research assistant - agronomic assessment of agroecological practices in each ALL (x 7)	5
Research	Environmental Sciences	Research assistant - preparation of environmental modeling input data in each ALL (x 7)	5
Research	Economics	Research assistant - data collection and analysis of survey data for economic indicators estimation in each ALL (x 7)	5
Research	Livestock Sciences	Research assistant - data collection and analysis of performance of productivity data in livestock systems in each ALL (x 7)	5
WORK PACKAGE 3			
Research	Economics, value chains and business models	WP 3 Lead. Oversees and guides value chain and business models analyses across ALLs	5
Research	Sustainable finances	WP 3 Co-lead -Financial analyses and investment cases	4
Research	Economics	Economic analyses for co-design of business models	4
Research	Gender and social inclusion	Guide mainstreaming and evaluation of gender and social inclusion indicators in business models and financial strategies	3
Research	Economics	Junior scientist - Workshop organization and implementation for value chain analyses and business models co-design (1 per ALL)	3
Research	Economics and Finances	Data collection and analyses of economic and financial indicators of business models and investment cases (1 per ALL)	4
Research	Social Sciences	Participatory methods application for value chain analyses and business models co-design (1 per ALL)	4
Research	Environmental Sciences	Estimation of environmental benefits of agroecological business models and investment cases (1 per ALL)	4
Research	Feed business and entrepreneurship	Financial analyses and investment cases for livestock-based business models (Burkina Faso and Tunisia) (1 per ALL)	4
WORK PACKAGE 4			
Research	Social Sciences	WP4 Lead - local institutions and governance	5
Research	Social Sciences, Policy Analysis	WP4 Co-lead: public policy analysis	5
Research	Social Sciences	Coordination and implementation of multistakeholder platforms in ALLs (1 per ALL)	4
Research	Social Sciences/Economics/Policy Sciences	Evidence based reports for policymakers (1 per ALL)	3
Research	Policy Sciences/Social Sciences	Policy and governance structures analyses (1 per ALL)	3
Research	Economics	Assessments of effects of scaling agroecological innovations in national socio-economic and environmental goals	3
WORK PACKAGE 5			
Research	Social Sciences	WP5 Lead: Design, plan, and guide implementation of participatory and iterative learning methods; collective action processes	5
Research	Social Sciences/Gender and social inclusion	WP5 Co-Lead: Plans and guide implementation of social inclusion, gender, agency, and behavior change analyses	4
Research	Social Sciences	Junior expert, coordinates application of participatory research and innovation co-design methods (1 per ALL)	4
Research	Social Sciences	Support qualitative and quantitative data for behavioral change analyses	4
Research	Social Sciences/Economics	Support implementation of workshops, data collection, cleaning, and consolidation	4
Research	Economics	Expert on workshop and focus group facilitation; coordination of enumerator/interviewer field teams (1 per ALL)	4
Research	Social Sciences/Economics	Qualitative research and data management, experienced in agency and behavior change methods	4
Research	Social Sciences	Agent-based modeling	3

9.2 Gender, diversity and inclusion in the workplace

Following the example set by the One CGIAR, the leadership of AE-I is evenly balanced (one female as Lead, one male as Co-Lead). Of the twenty-member Initiative Design Team, 50% are female, exceeding the CGIAR's gender target of a minimum of 40% women in professional roles, and is comprised of individuals from diverse backgrounds. Six IDT members come from LMICs or emerging economies. By October 2021, the IDT will assess the CGIAR 's gender target to the overall Initiative team to ensure balanced gender representation. Also, we will encourage women and men from diverse national backgrounds to occupy the roles required for the Initiative implementation ([section 9.1](#)). AE-I will use best practices within the CGIAR to establish and implement professional development, mentoring, and leadership development tracks for women, minorities, and other underrepresented groups during Initiative development (by 2024).

9.3 Capacity development

One of AE-I's key priorities is to build integrated solutions with different stakeholders encompassing production technologies, inclusive business models and market arrangements, and enabling policies that favor agroecological transitions (see [section 2.2](#)). Therefore, there is a need to couple the co-development of agroecological options and scaling up strategies with the empowerment and capacity building of junior level team members, partners and stakeholders of AE-I. More so, to guarantee that a variety of internal and external actors will continue influencing food system outcomes in the future. Capacity development will be achieved by: i) offering knowledge-based courses and dialog spaces where young, female and male representatives of national and international research centers, institutions, and communities can participate (facilitated by the networks established through ALLs (WP1)); ii) expanding knowledge exchange beyond the Initiative, by holding training programs and knowledge exchange spaces through the [TPP](#) and its members that are not part of AE-I; and iii) supporting training to researchers, authorities and farmers organizations on what investors need to make decisions in sustainable agriculture. Other capacity building activities specific to each Impact Area have been included in the Impact Statements, see [section 5](#).

Research capacity development will be ensured through strategic partnerships with universities and research institutions (CIRAD, ICRAD-CIFOR, and NARS from the seven intervening countries). An initial mapping exercise has been initiated and definitive alliances will be established at the inception phase.

AE-I's team leaders and managers will complete training on inclusive leadership within three months of launch. While within six months, the Initiative team members will complete training on gender, diversity, and inclusion, including on whistleblowing and how to report concerns. At AE-I's kick-off, an awareness session will be offered on CGIAR's values, code of conduct and range of learning opportunities available within CGIAR.

10. Financial resources

10.1 Budget

10.1.1: Activity breakdown

USD	2022	2023	2024	TOTAL
Crosscutting across Work Packages	1,133,333	1,133,333	1,133,333	3,399,999
Work Package 1	1,796,277	3,156,241	3,456,241	8,408,759
Work Package 2	2,760,756	2,605,692	2,905,692	8,272,140
Work Package 3	937,787	1,334,543	1,334,543	3,606,873
Work Package 4	1,483,602	2,111,280	2,111,280	5,706,162
Work Package 5	885,577	1,260,245	1,260,245	3,406,067
Innovation packages & Scaling Readiness		100,000	100,000	200,000
Total	8,997,332	11,701,334	12,301,334	33,000,000

Notes: (1) “Crosscutting across Work Packages” include: Initiative’s lead and deputy lead, program management officer, monitoring expert, impact assessment expert, coordination workshops, communications person, webtools developer for the monitoring dashboard, catalyzer fund (see Section 4.1.)

(2) “Work Packages” include: Personnel cost of CGIAR Center and external partners (international, i.e., CIRAD and ICRAF-CIFOR, and national, i.e., NARs and local NGOs partners); Operational costs (laboratory costs, stakeholder workshops, traveling, policy dialogues, equipment, publications, capacity development for farmers and young researchers)

10.1.2: Geographic breakdown

USD	2022	2023	2024	Total
Kenya	1,123,429	1,474,000	1,549,000	4,146,429
Global (not specific country)	1,133,329	1,383,334	1,458,334	3,974,997
Burkina Faso	1,123,429	1,474,000	1,549,000	4,146,429
India	1,123,429	1,474,000	1,549,000	4,146,429
Laos	1,123,429	1,474,000	1,549,000	4,146,429
Peru	1,123,429	1,474,000	1,549,000	4,146,429
Tunisia	1,123,429	1,474,000	1,549,000	4,146,429
Zimbabwe	1,123,429	1,474,000	1,549,000	4,146,429
Total	8,997,332	11,701,334	12,301,334	33,000,000

Note: We anticipate the implementation of all WPs in all ALLs. However, there might be differences in country-specific implementation costs. Over the following weeks, we will finalize the detailed budget per country that should reflect slight differences across countries.

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- ¹ HLPE. 2019. [Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition](#). A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome.
- ² Von Braun, J., Afsana, K., Fresco, L., Hassan, M., & Torero, M. 2021. Food Systems–Definition, Concept and Application for the UN Food Systems Summit. A paper from the Scientific Group of the UN Food Systems Summit.
- ³ FAO. 2018. Sustainable food systems: concept and framework. Brief. Rome
- ⁴ Wezel, A., Herren, B.G., Kerr, R.B. Barrios, E., Goncalves, A.L.R., and Sinclair, F. 2020. Agroecological principles and elements and their implications for transitioning to sustainable food systems. A review. *Agronomy for Sustainable Development* <https://doi.org/10.1007/s13593-020-00646-z>
- ⁵ European Commission. 2020. [Building a partnership on agroecology living labs and research infrastructures](#). Webinar report. June, 2020.
- ⁶ Smith, P., D. Martino, Z. Cai, D. Gwary, H. Janzen, P. Kumar, B. McCarl, S. Ogle, F. O’Mara, C. Rice, B. Scholes, and O. Sirotenko. 2007: Agriculture. In *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA
- ⁷ Dudley, N. and Alexander, S. 2017. Agriculture and biodiversity: a review. *Biodiversity* 18, (2-3) 45-49. <https://doi.org/10.1080/14888386.2017.1351892>
- ⁸ FAO and IWMI, 2017. Water pollution from agriculture: a global review. <http://www.fao.org/3/i7754e/i7754e.pdf>
- ⁹ Pravalie et al. 2021. Arable lands under the pressure of multiple land degradation process. A global perspective. *Environmental Research* 194 <https://doi.org/10.1016/j.envres.2020.110697>
- ¹⁰ Editorial, 2020. Ending hunger: science must stop neglecting smallholder farmers *Nature* 586, 336 (2020) doi: <https://doi.org/10.1038/d41586-020-02849-6>
- ¹¹ Anderson, C.R., Bruil, J., Chappell, M.J., Kiss, C. and Pimbert, M.P. 2020. Agroecology Now! Transformations towards more just and sustainable food systems. Palgrave Macmillan. <https://doi.org/10.1007/978-3-030-61315-0>
- ¹² Atta-Krah K. (coord.), Chotte Jean-Luc (coord.), Gascuel C. (coord.), Gitz V. (coord.), Hainzelin E. (coord.), Hubert B. (coord.), Quintero M. (coord.), Sinclair F. (coord.). 2021. Agroecological transformation for sustainable food systems: insight on France-CGIAR research. Montpellier: Agropolis International, 147 p. (Dossiers d’Agropolis International; 26). ISSN 1628-4259.
- ¹³ Anderson, C.R., Bruil, J., Chappell, M.J., Kiss, C. and Pimbert, M.P. 2019. From transition domains of transformation: getting to sustainable and Just food systems. *Sustainability* 11, 5272; doi:10.3390/su11195272
- ¹⁴ Anderson, C.R. Pimbert, M.P., Chappell, M.J., Brem-Wilson, J., Cleays, P., Kiss, C., Maughan, C., Milgroom, J., McAllister, G., Moeller and Singh, J. 2020. Agroecology now – connecting the dots to enable agroecology transformations.
- ¹⁵ Hall, H.; Bullock, A.; Barbara A. 2014. 2014. Forward-Looking Review of the CGIAR Challenge Program on Water and Food 2013-2014. [\(PDF\) Forward-Looking Review of the CGIAR Challenge Program on Water and Food \(2013-2014\) \(researchgate.net\)](#)
- ¹⁶ CAS Secretariat (CGIAR Advisory Services Shared Secretariat). 2021. Synthesis of Learning from a Decade of CGIAR Research Programs. Rome: CAS Secretariat Evaluation Function. <https://cas.cgiar.org/>
- ¹⁷ CAS Secretariat (CGIAR Advisory Services Shared Secretariat). 2020. CGIAR Research Program 2020 Reviews: Water, Land and Ecosystems (WLE). Rome: CAS Secretariat Evaluation Function. <https://cas.cgiar.org/>
- ¹⁸ Douthwaite, B and Getnet, K., 2019. Outcome evaluation of the work of the CGIAR Research program on Land Water and Ecosystems (WLE) on soil and water management in Ethiopia. WLE Evaluation Report <https://wle.cgiar.org/outcome-evaluation-work-cgiar-research-program-land-water-and-ecosystems-wle-soil-and-water>

-
- ¹⁹ CAS Secretariat (CGIAR Advisory Services Shared Secretariat). 2020. CGIAR Research Program 2020 Reviews: Climate Change, Agriculture and Food Security. Rome: CAS Secretariat Evaluation Function. <https://cas.cgiar.org/>
- ²⁰ World development indicators. Washington, D.C. The World Bank. <https://databank.worldbank.org/>
- ²¹ United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, custom data acquired via website.
- ²² Geobosques. Programa Nacional de Conservación de Bosques para la Mitigación del Cambio Climático. <https://geobosques.minam.gob.pe/geobosque/view/perdida.php>
- ²³ Barrios, Edmundo; Valencia, Vivian; Jonsson, Mattias; Brauman, Alain; Hairiah, Kurniatun; Mortimer, Peter E.; Okubo, Satoru (2018): Contribution of trees to the conservation of biodiversity and ecosystem services in agricultural landscapes. In *International Journal of Biodiversity Science, Ecosystem Services & Management* 14 (1), pp. 1–16. DOI: 10.1080/21513732.2017.1399167
- Tamburini, Giovanni; Bommarco, Riccardo; Wanger, Thomas Cherico; Kremen, Claire; van der Heijden, Marcel G. A.; Liebman, Matt; Hallin, Sara (2020): Agricultural diversification promotes multiple ecosystem services without compromising yield. In *Science advances* 6 (45). DOI: 10.1126/sciadv.aba1715
- ²⁴ Albicette, M. M., Leoni, C., Ruggia, A., Scarlato, S., Blumetto, O., Albín, A., & Aguerre, V. 2017. Co-innovation in family-farming livestock systems in Rocha, Uruguay: A 3-year learning process. *Outlook on agriculture*, 46(2), 92-98. <https://doi.org/10.1177%2F0030727017707407>
- ²⁵ Gloria I. Guzmán, Daniel López, Lara Román & Antonio M. Alonso. 2013. Participatory Action Research in Agroecology: Building Local Organic Food Networks in Spain, *Agroecology and Sustainable Food Systems*, 37:1, 127-146, DOI: 10.1080/10440046.2012.718997
- ²⁶ Mapfumo, P., Adjei-Nsiah, S., Mtambanengwe, F., Chikowo, R., & Giller, K. E. 2013. Participatory action research (PAR) as an entry point for supporting climate change adaptation by smallholder farmers in Africa. *Environmental Development*, 5, 6-22. <https://doi.org/10.1016/j.envdev.2012.11.001>
- ²⁷ FAO. 2018b. The 10 Elements of Agroecology: guiding the transition to sustainable food and agricultural systems. Rome: Food and Agriculture Organization of the United Nations. <http://www.fao.org/3/i9037en/i9037en.pdf>. [Google Scholar]
- ²⁸ Snapp, S., Kebede, Y., Wollenberg E., Dittmer, K.M., Brickman, S., Egler, C., and Shelton, S. 2021. Delivering climate change outcomes with agroecology in low-and middle-income countries: Evidence and actions needed. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).
- ²⁹ Ostrom, E. 2009. A general framework for analyzing sustainability of social-ecological systems. *Science*, 325(5939), 419-422.
- ³⁰ Lotz-Sisitka, H., Mukute, M., Chikunda, C. *et al.* 2017. Transgressing the norm: Transformative agency in community-based learning for sustainability in southern African contexts. *Int Rev Educ* 63, 897–914. <https://doi.org/10.1007/s11159-017-9689-3>
- ³¹ Mukute, M., Mudokwani, K., McAllister, G. and Nyikahadzo, K. 2018. Exploring the Potential of Developmental Work Research and Change Laboratory to Support Sustainability Transformations: A Case Study of Organic Agriculture in Zimbabwe, *Mind, Culture, and Activity*, 25:3, 229-246, doi: [10.1080/10749039.2018.1451542](https://doi.org/10.1080/10749039.2018.1451542)
- ³² Global Nutrition Report. 2020. <https://globalnutritionreport.org/43147f>
- ³³ Kerr, R.B., Madsen, S., Stuber, M., Lebert, M., Enloe, S., Borghino, N., Parros, P., Mutyambai, D.M., Prudhon, M and Wezel, A. 2021. Can agroecology improve food security and nutrition? A review. *Global Food Security* 29, <https://doi.org/10.1016/j.gfs.2021.100540>
- ³⁴ World Bank. 2018. Poverty and Shared Prosperity 2018: Piecing Together the Poverty Puzzle. World Bank, Washington, D.C. World Bank [Piecing Together the Poverty Puzzle \(worldbank.org\)](https://www.worldbank.org/)
- ³⁵ D’Annolfo, R., Gemmill-Herren, B., Graeub, B., and Garibadi, L.A. 2017. A review of social and economic performance of agroecology. *International Journal of Agricultural Sustainability*. <https://doi.org/10.1080/14735903.2017.1398123>

-
- ³⁶ Downs, S.M. and Fox, E. L. 2021. Uneven decline in food system inequality. *Nature Food*. 2, 141-142. <https://doi.org/10.1038/s43016-021-00247-3>
- ³⁷ Ruel MT, Quisumbing AR, Balagamwala M. 2018. Nutrition-sensitive agriculture: What have we learned so far? *Glob Food Sec*; 17: 128–53
- ³⁸ Elias M; Ihalainen M; Monterroso I; Gallant B; Paez Valencia AM. 2021. Enhancing synergies between gender equality and biodiversity, climate, and land degradation neutrality goals: Lessons from gender-responsive nature-based approaches. Bioversity International. Rome, Italy. 28 p.
- ³⁹ Laborde, D., Mamun, A., Martin, W., Pineiro, V and Vos, R. 2021. Agricultural subsidies and global greenhouse gas emissions. *Nature Communications*, 12 (2601) | <https://doi.org/10.1038/s41467-021-22703-1> m
- ⁴⁰ Vermeulen, S.J., Campbell, B.M., and Ingram, J.S. 2012. Climate Change and food systems. *Annual Rev. Environ. Resourc.* 37:195-222. [Climate Change and Food Systems \(un.org\)](https://doi.org/10.1146/annurev-environ-020311-109709)
- ⁴¹ IPCC, 2019: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.-O. Pörtner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)]. [210714-IPCCJ7230-SRCCL-Complete-BOOK-HRES.pdf](https://www.ipcc.ch/report/land/)
- ⁴² Leippert, F., Darmaun, M., Bernoux, M. and Mpheshea, M. 2020. The potential of agroecology to build climate-resilient livelihoods and food systems. Rome. FAO and Biovision. <https://doi.org/10.4060/cb0438en>
- ⁴³ DeClerck, F. A. J.; Koziell, I.; Sidhu, A.; Wirths, J.; Benton, T.; Garibaldi, L. A.; Kremen, C.; Maron, M.; Rumbaitis del Rio, C.; Clark, M.; Dickens, C.; Estrada-Carmona, N.; Fremier, A. K.; Jones, S. K.; Khoury, C. K.; Lal, R.; Obersteiner, M.; Remans, R.; Rusch, A.; Schulte, L. A.; Simmonds, J.; Stringer, L. C.; Weber, C.; Winowiecki, L. 2021. Biodiversity and agriculture: rapid evidence review. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Research Program on Water, Land and Ecosystems (WLE). 70p. doi: <https://doi.org/10.5337/2021.21>
- ⁴⁴ Benton, T.G., Bieg, C., Harwatt, H., Pudasainin R., and Wellesley, L. 2021. Food system impacts on biodiversity loss: three levers for food system transformation in support of nature. Chatham House.
- ⁴⁵ Kopittke, P.M., Menzies, N.W., Wang, P., McKenna, B.A. and Lombi, E. 2019. Soil and the intensification of agriculture for food security. *Environment International*, 132 <https://doi.org/10.1016/j.envint.2019.105078>